The Journal of Abnormal and Social Psychology

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EDITORIAL

SOCIAL SCIENCE RESEARCH IN 1930

SIGNIFICANT as a commentary on the growing interrelations of research in psychology and the other social sciences is the recent report of the Social Science Research Council of its awards of fellowships and grants-in-aid for the year 1929–1930.

The Council's statement of policy regarding research fellowships contains the following sentence: "Other things being equal, preferential consideration is likely to be given to applicants who propose to broaden their horizons by carrying on cross-discipline research, although in many cases Fellows elect to use the year to push further into the special fields in which their doctoral dissertations lie." Similarly the announced policy on this point in regard to grants-in-aid reads: "While the grants are awarded on a general competitive basis, preference is ordinarily given to projects involving two or more disciplines or likely to yield an important methodological contribution."

For the year 1930 three of the fellowships and two of the grants-in-aid were awarded to projects which were primarily psychological but in which there was an implied relation to one or more of the other social disciplines; and reciprocally several of the projects in Economics, Sociology and Political Science had clear implications for the field of psychology.

Such a fusion of separate interests in matters academic has clearly become the needed antidote for excessive departmental specialization. Not the least of the accomplishments of the Social Science Research Council will prove to have been its encouragement of the development of a type of social science which is coöperative in spirit as well as scientific in method.

TWO PROBLEM CHILDREN

By WM. CLARK TROW
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THE two children whose tortuous development is here described are the partially reclaimed victims of mistakes made by the home and the hospital, two institutions from which society expects much, and of which it will come to demand more as the years bring a fuller understanding.

1. A Child Who Would Not Talk [1]

Rose was seven years old and had been two years in school; and during that time no one, pupils or teachers, in the buildings or on the playground, had ever heard her speak a word. After a half year in the kindergarten she had been transferred to the first grade because the teacher there was more experienced. Here she had remained for a year and a half, when the principal brought her to the adjustment room teacher with the remark, "Do what you can for her, but she will probably only sit and watch the others."

Aside from her mutism and her excessive timidity she seemed quite a normal and attractive child. She had no disease history, though she appeared at first to be overweight; but this was found to be due to several layers of clothing into which she had been sewed. It was, of course, quite impossible to determine her intelligence, for she would not respond to any of the test questions; but her card was labeled "very low grade."

Investigation disclosed that she was the fourth of five children—she had one sister—of very poor Polish parents. The mother kept the home clean and the father was a good workman; but owing to his excessive drinking he could not hold a job for long at a time. He was very partial to his three boys; but as Helen later explained, "My fader does not like us girls, my sister and me. He just likes boys." It was further found out that she and her sister were brutally treated by the father, who, when drunk, would beat them with a piece of garden hose which was reserved for the purpose. Many times, even late in the fall, the children would sleep under the porch rather than face him; and in his presence they were not allowed to speak. Since the three

[1] Data obtained by Agnes Bates Hathaway, the adjustment room teacher.

boys were quite normal, and the sister stuttered badly, this situation would appear to be the chief cause of Helen's mutism.

She was six months in the adjustment room before she first communicated verbally with any one, and then just a whispered word to the teacher. After a while, at the teacher's suggestion to some of the older pupils, she was included in some of the simpler games in which she would not be too conspicuous; and she was persuaded to attend to certain small duties to which she had been assigned. She understood what was said to her, for in response to a question she would nod or shake her head; and she had apparently learned many of the words in her reader, for she could point them out when they were read to her. She was never put in a class with the others; but instead was seated in a little chair, with the teacher close to her in another. And so her whispered "recitations" were conducted for four more months.

The second year in the adjustment room she read a "story" (one sentence) to a pupil about six feet in front of her, a real victory; though even after she became more normal in her reactions she would shut up like a clam, unable to say a word if a visitor or even the principal came into the room. Later this was overcome by giving her first written and then oral messages to deliver to the principal, and by allowing her to go to the third grade room to find out the work they were doing and then return to her room to do it. She gained further confidence when she found out that she was able to do the work of her grade.

The third year she was transferred to the regular grade room, which would not have been done if the teacher there had not been sympathetic and quiet in voice and manner. At this time she was given the Stanford test and found to have an I.Q. of 110. Since that time she has passed each grade regularly with a mark of "A". Each teacher has known her record and has dealt sympathetically with her, so that the work of the past years might not be undone. She is now fourteen and in the eighth grade, still a little weak in oral English, still bashful, but on the whole quite normal and well adjusted. Her home life is much improved, since the civil authorities put a stop to the beatings, though her father is still most disagreeable. Only the scar is left of the fear which came near to wrecking her whole life.

2. A Child Whose I.Q. Rose from 61 to 101 [2]

Jimmy had the double misfortune of being illegitimate and clubfooted. Though his parents are both quite normal, his case

[2] Data obtained by Velma Foster, the quondam guardian.

of clubfootedness was one of the worst on record. Ober's operation was performed, which necessitated casts that were changed every three or four weeks. These were very heavy and reached above the knees and so kept his legs stiff; he kicked smaller ones through at the heel. The first operation proved unsatisfactory, so a second one was performed when he was three years old. At the hospital he contracted pneumonia and was critically ill for several weeks. When next seen his lower front teeth had been extracted; "because of abscesses" was the reason given by the nurse, though this is sometimes done to prevent choking when a patient is under ether. Casts were changed every two weeks, a most painful process, for four months when he underwent a third operation; after another four months he had his first shoes and braces.

The following June (1924), when he was nearly four, his I.Q. was 61. He didn't know a penny, or his sex. His vocabulary was limited to a few sounds to express his needs. He could not feed himself even with a spoon, could eat only liquid food, was incontinent, was deathly afraid of animals and men, and subject to fits of rage, though he was most of the time quiet and docile. Steps were taken to have him sent to the state institution for the feebleminded. Instead he was given into the custody of a family consisting of the teacher who obtained these data and her mother.

He had been with them ten days before they discovered what no one had apparently noticed, that he did not chew. He had choked on everything but liquid food. Miss Foster's report reads: "Suddenly, on the tenth day, I observed, as he awkwardly fed himself, that he was not chewing and told him so. He obviously did not know what I meant. I demonstrated, exaggerating the movement of my jaws. He was unable to do likewise. I took his lower jaw in my hand, putting the other hand upon his head, and moved the jaw up and down slowly. He was greatly surprised but could not yet move it himself. He, however, took his hands and moved it. Thereafter we spent much time practicing chewing, the habit being formed very slowly, notwithstanding his patient efforts."

Clearly this lack of motor coördination, together with the loss of his lower front teeth, were cause enough for his inability to articulate. Furthermore, his isolation from the world of people gave him no background of experience. The savage of Aveyron had had an eventful sensori-motor life in comparison.

But other things happened to lighten the discouragement of his guardian: he made friends with one of the men at a family gathering; and later he worked at a complicated latch on the

garden gate until he opened it, then shut the gate and triumphantly reopened it. The campaign of experience for him began. For three years he was taken everywhere,—club meetings, picnics, excursions, circuses, fairs, shopping trips, etc., thus overcoming his shyness and giving him experiences with many situations. In June, 1924, his I.Q. had been 61; in January, 1925, it was 70; in October of that year it was 85, and in December, 1926, it was 95. Articulation and experience were seemingly the chief factors that brought him up to normal.

After two years, the illness of his guardian's mother made his removal necessary and the next year which included another operation, showed no progress. A rather successful period in the second grade of a good public school was followed by two long stretches in the hospital, once with influenza. But on February 25, 1929, when he was eight years, seven months old, his mental age was 8.8 giving him an I.Q. of 101. The state has spent approximately $6,000 for operations of uneven merit; he is still crippled, but otherwise a normal, fine-looking lad. Institutional life, however, is working its insidious influence, and unless he can have such a home as any boy needs, the outlook for a wholesome, well-rounded development is exceedingly dubious.

RECALL OF DREAMS DURING THE SLEEP PERIOD

By F. K. BERRIEN

COLGATE PSYCHOLOGICAL LABORATORY

DOES one dream more frequently early or late in the night's rest, or is there no difference? What factors affect the number of dreams recalled? Would an individual be more likely to remember a dream if awakened quickly or gradually? It was for the purpose of investigating these questions that this study was undertaken.

Four subjects were used over a period of seven weeks during which time each was awakened once each night of the twenty-eight when data were collected. The reason for using only a small number of the nights covered by the experiment was two-fold. First, since the activities of the day might affect the number of dreams, days were chosen which were as equal as possible so far as excitement, unusual events, etc., are concerned. Secondly, the subjects never knew on what night they would be called so that preparation to recall the dreams on the part of the subjects was probably avoided.

The recall of dreams was obtained at fifty-minute intervals but only one interval was experimented upon in a single night. From night to night the intervals were followed in an irregular order so the subjects would have little idea what time it might be when recall was asked. Since the subjects were acquainted with current opinions concerning the course of sleep this method was employed to minimize any unintentional effort to recall dreams at a particular hour.

In order to avoid a practice effect that might come as a result of several night's experimentation the schedule was repeated and reversed three times in the double fatigue order which gave to the hour of least initial practice the advantage of maximum practice when the order was repeated. Four readings were obtained for each hour of the night from each subject. The hours used and their order are as follows: 6:00, 4:20, 2:40, 1:00, 1:50, 3:30, 5:10, and the same repeated and reversed three times. The experiment was divided into two phases, each consisting of one-half of the experimental nights. In waking the men in the first phase the lights were first turned on and then each was shaken lightly by

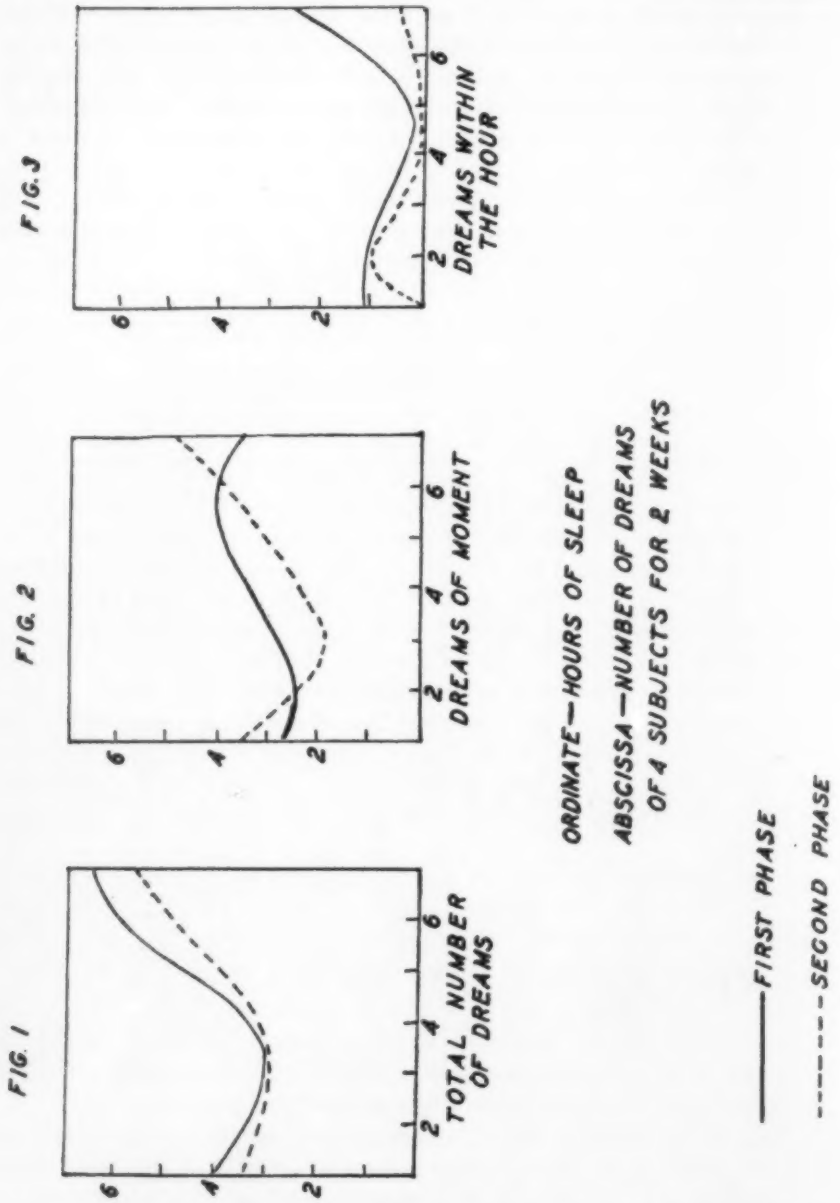
the shoulder to awaken him so that the dreams might not be obscured by too complete wakefulness. In the second phase the experimenters repeated softly before turning on the lights, "Remember your dreams. Remember your dreams." In this way it was thought that the sleeper would be awakened in such a manner that the recall of dreams would be easier.

When awakened the subjects were given a short data blank asking if they were dreaming, and if so what. The dreams recorded under this question are denoted as dreams of the moment in the data. A second blank asked if they had been dreaming earlier and what those dreams were about. These were recorded as dreams within the hour.

The results were rather surprising to all those connected with the experiment. Considering the total number of dreams both of the moment and those occurring within the hour which were recalled in each phase, in Fig. I (slightly smoothed) the first phase shows a considerable number recalled early in the night's rest followed by a depression with the minimum in the third hour. The drop is succeeded by a rise to reach a still higher point than was attained in the fore part of the night. In comparing this curve with that of the second phase it is obvious that the latter is somewhat smoother. There are not so many dreams early or late while the minimum point remains about the same. From these data it appears that urging the subjects to remember their dreams in the second phase had a negative effect upon the first and last parts of the rest period only. Dreams will apparently be more likely to be remembered if the sleeper is awakened suddenly.

Next consider the dreams of the moment as related to the type of waking in the two phases. In Fig. II we find an increase in the number recalled in the early and last hours of sleep when prompting is used, while at the same time there is a noticeable decrease in the third hour. Here it seems as if the prompting tended to be an aid in recalling the dreams taking place at the moment of awakening at both extremes of the night, while it apparently was a hindrance when sleep was deepest.

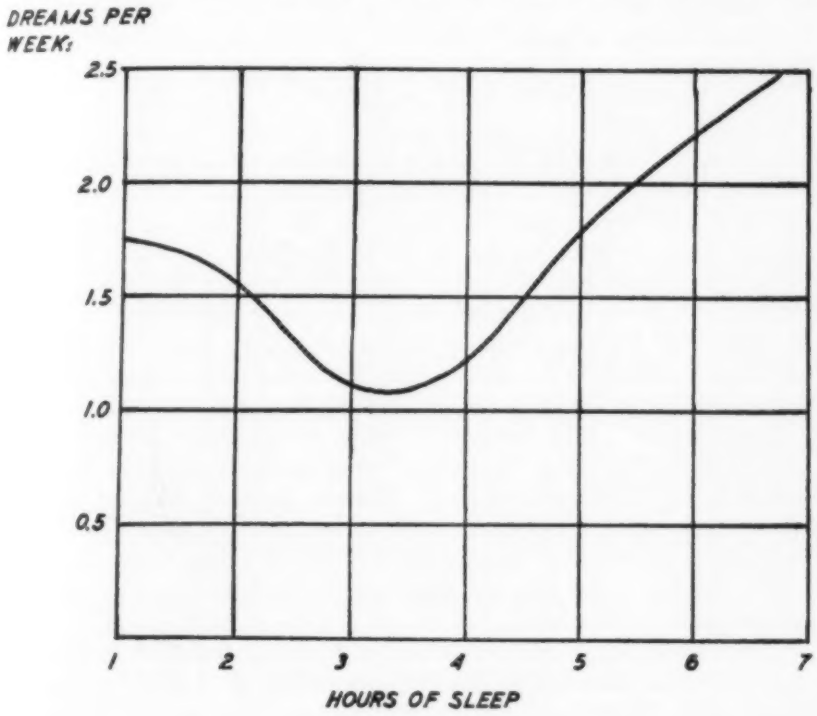
The most marked difference in the effect of the two methods of waking is shown in the dreams occurring within the hour. Here we find that prompting had a negative effect during the entire night since only 42 per cent of the number recalled in the first phase were recalled in the second. The second phase curve at all hours is lower than the first although the most marked differ-



ences are again to be found at the beginning and end of the sleep period.

The composite curve in Fig. IV shows the course of recall of all

dreams in both phases. The fact that there seems to be a considerable number of dreams recalled in the early stages of sleep may be looked upon as due to the fact that the mind is still relatively active with the events of the day. As sleep grows deeper it evidently becomes less active and the dreams less frequent until



WHEN WE REMEMBER MOST DREAMS

COLGATE PSYCH. LAB.
4-29-29. F.K.B.

wakefulness sets in towards morning. With the onset of relatively lighter sleep the sleeper is more affected by outside stimuli such as noises, the weight of the bed clothing, and this may account for the increase in the frequency of dreams in that part of the night.

In connection with this it is well to point out that many author-

ities maintain that simply because a dream is not recalled it does not necessarily follow that no dream occurred. If this point of view be accepted then it is equally true that the depression in the dream curve indicates simply that the recall of dreams becomes more difficult and there is not necessarily a decrease in the amount of dreaming taking place. We are not aware of any direct data, however, which indicate that dream activity is continuous through the night.

An interesting side light in regard to the relation between emotional stability and the number of dreams was brought out in our data. Ordinarily one might expect either of two things: Due to the greater "censor" activities unstable individuals might conceivably not recall any dreams; on the other hand, we might reason that dreams would be more frequent, being a prepotent outlet for their repressions. Upon examining the data it was found that the subjects who rated highest in emotional instability as measured by the Colgate Mental Hygiene Tests reported the greatest number of dreams. Our limited cases indicate that the more stable emotionally an individual may be, the less that individual dreams. This subject is being investigated further.

In comparing these dream curves with other sleep curves, there seems to be little connection. Muscle tension has no apparent effect on dreams. The same holds true for calorie production and in fact for practically all similar processes. The conclusion to be drawn seems to be that dreams are to be looked upon as rather independent phenomena.

In considering these results as a whole it must be remembered that the data have a bearing only in so far as recalled dreams are concerned. However, until means are discovered whereby a record of all dreams can be secured, any conclusions in this field must rest upon recalled dreams only.

(The author wishes to express his appreciation for the coöperation of the following subjects. Lucian Drake, Sidney Rothbard, James Lewis and J. F. Smith.)

A STUDY OF PERSONALITY

By ARTHUR JERSILD
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THE present study was undertaken with a three-fold purpose: to find the degree to which certain traits and abilities lend themselves to discriminative measurement within a relatively homogeneous group; to check the results on standard tests against results obtained from personal ratings; to find the correlation between certain personality traits.

The subjects, 42 in number, were members of a class in Social Psychology at Barnard College. The various tests and measures applied were:

A Test of Ascendance-Submission in Personality, by Allport and Allport.[1]

The George Washington University Social Intelligence Test.[2]

The Matthews emotional stability questionnaire,[3] supplemented by twenty items from the Woodworth-House inventory,[4] giving a total of ninety questions.

The Otis Self-Administering Test of Mental Ability, Higher Examination, form A.[5]

Student ratings were obtained for the following traits:

Ascendance-Submission.

Amiability.

Beauty.

The subject was provided with an alphabetical list of the names of the students in the class for each of the three traits to be rated. She was told to go through the list and check the name of each person with whom she was personally acquainted. (In the case of beauty, check the names of all whom she knew by sight). Following this, she was directed to assign a score to each of the names checked, using a scale from 1 to 20; the higher the score, the higher the ascendance, amiability, beauty. The student was directed to

[1] Houghton Mifflin Company, New York, 1928. For a discussion of the test by the authors, see JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 1928, XXIII, 2; and for further results obtained with the test, I. Bender, *Ascendance-Submission in Relation to Certain Other Factors in Personality*, same JOURNAL.

[2] Copyright, 1927, by F. A. Moss.

[3] Matthews, A Study of Emotional Stability in Children, *Jour. of Delinquency*, January, 1923.

[4] S. D. House, A Mental Hygiene Inventory, *Archives of Psych.*, No. 88.

[5] World Book Company, Yonkers-on-Hudson, N. Y., 1922.

consult with no one in entering her ratings, and to rate the individuals not in terms of a rank order of merit restricted to this particular group but in terms of her own subjective standards as she might apply them to individuals in the world at large. She was told to hand in the rating sheets at the next meeting of the class.

For each student, accordingly, was obtained a score on each of the seven measures applied. The scores on the standard tests were derived in the usual manner; the score on the emotional stability test consisted of the total number of "symptomatic" answers; that obtained from the ratings consisted of the median value assigned to each student by the total number of individuals who marked her name. The range of values from which this median was obtained varied from individual to individual according to the number of persons who checked a given name.

Results

In the first table below are given the measures of central tendency and variability of the scores obtained on the various tests. The relative variability was derived by the formula $\frac{100\ \text{S.D.}}{\text{Av.}}$.

TABLE 1

	Amiability	Beauty	Asc.-Subm. (ratings)	Asc.-Subm. (Allport)	Emotional stability	Social intell.	General intell.
Average	11.21	9.98	10.60	17.85	20.66	116.55	67.36
Range	3.5–19	1.5–19	3.5–18	−20–50+	4–44	96–138	50–75
S.D.	3.24	3.84	3.62	17.64	9.12	10.58	5.64
$\frac{100\ \text{S.D.}}{\text{Av.}}$	28.9	38.4	34.2	98.3	44.1	9.1	8.4

The figures showing the range and the relative variability of the several measures are instructive. The spread of the scores in the case of general intelligence and social intelligence is relatively very low. This result is to be expected from the fact that the tests were given to select individuals. The spread of the scores in the remaining traits is enormously greater. It appears that in a group which is quite homogeneous with respect to intelligence there still obtains a striking difference between individuals in the field of such traits as emotional stability, ascendance-submission, amiability, and beauty. The same outstanding individual differences would be found in intelligence scores, it is true, if the tests had been given to an unselected population. In view of the wide range of scores in the personality "traits" here measured

it is apparent that these traits lend themselves to treatment by the method of correlation, and that the results so obtained will be of some significance.

The scores obtained on the Allport Ascendance-Submission test show especially high relative variability. This observation, already anticipated by results obtained from previous studies with the test by the authors themselves, speaks well for the test as a measure of differences between individuals with respect to this trait. Common observation amply testifies to the existence of such differences in everyday life. The wide range of scores in the case of the emotional stability test similarly conforms to the everyday observation that individuals on much the same intellectual and cultural plane may differ decidedly in the degree to which they suffer from worries, fears, painful memories, and other disturbances. It must be said, however, that individual differences shown on this test may arise in part from a difference in the candor with which subjects will respond to questions which touch rather intimately on their private lives.

The above observations lend added interest to the results obtained by the method of correlation applied to the various measures. The table below gives the coefficients of intercorrelation. All of these coefficients were obtained by the Product-moment method. The P.E.'s are not presented, due to the narrow range of their magnitudes (from ±.10 with a coefficient of zero, to ±.07 with a coefficient of .52).

TABLE 2

COEFFICIENTS OF CORRELATION BETWEEN THE VARIOUS TRAITS

	Amiability	Beauty	Ascend.-Sub. (ratings)	Ascend.-Sub. (Allport)	Emotional Stability	Social Intelligence	General Intelligence
Amiability	...	.52	.08	.03	.16	.27	.23
Beauty	.52	...	.33	.31	.06	—.01	.31
Ascendance-Submission (student's ratings)	.08	.33	...	.51	.31	.30	.31
Ascendance-Submission (Allport test)	.03	.31	.51	...	.18	.14	.26
Emotional Stability	.16	.06	.31	.18	...	.15	.00
Social Intelligence	.27	—.01	.30	.14	.15	...	.40
General Intelligence (Otis S–A)	.23	.31	.31	.26	.00	.40	...

The first item of interest in the table above is the correlation between students' ratings and scores on the test of Ascendance-Submission. The coefficient, .51, is second in magnitude to only one other figure indicated in the table. The authors of the test report that in other studies in which the test has been checked against ratings the coefficients have ranged from +.29 to .79. The present figure strikes an approximate mean between this range. The writer of this report is of the opinion that still higher correlations would be obtained if the students, in rating one another, had had the opportunity to observe the subject in situations as varied as those covered in the test.

No other two measures in the present study can be taken as direct checks upon one another. It is interesting to note, however, that the correlation between Amiability and Social Intelligence is relatively low (.27). The significance of this result is somewhat minimized by the fact that the range in Social Intelligence scores is rather low. The correlation between general (Otis) intelligence and social intelligence is so high, relative to other coefficients shown, as to indicate that the factor of "general" intelligence operates to no small degree in determining an individual's score in "social" intelligence.

A significant result is the high correlation between Amiability and Beauty. The students were instructed, in rating for Beauty, to take into account only physical appearance as it struck the eye; "Amiability", on the other hand, was qualified with the terms "likeableness", "agreeableness", "pleasant or unpleasant personality", apart from mere physical appearance. The distinction between the two traits, even with these qualifications, is not, perhaps, so well defined, yet in ordinary experience it is a distinction which can be made without great difficulty, especially with reference to members of the same sex. The coefficient of correlation between the two, .52, is higher than any other coefficient shown in the table.

The interpretation of this result is not so clearly indicated. Is the individual rated high for amiability because she is pretty, or is she regarded as pretty because she has proved to be an amiable person? No doubt the rule works both ways. Yet, on the face of the present results it appears that differences in beauty within a college population are more effective in determining an individual's amiability rating than are differences in intelligence, emotional stability, and ascendance-submission as measured by the

present methods. It would be interesting to note whether there are sex differences with respect to this finding.

There is a positive correlation between Beauty and general intelligence, even though the range in the latter order of scores is rather narrow. This result with respect to physical appearance is concordant with observations of a positive correlation between intelligence and the more objective physical traits, such as height, weight, speed and strength of movement, as reported by other investigators.[6]

The correlation between Amiability and Ascendance-Submission is very low. By the method of partial correlation, whereby other factors which correlate positively with both factors, such, for instance, as general intelligence, can be partialled out, the correlation between Amiability and Ascendance is reduced to a zero or negative value. It appears that an ascendant attitude is not an asset in procuring for the individual the reputation of being an agreeable person. On the other hand, Ascendance correlates positively with such traits as beauty; intelligence, both "general" and "social"; and emotional stability.

Emotional stability (*i.e.*, relatively low number of symptomatic answers) correlates positively with Ascendance; the remaining coefficients for this trait are low and unreliable. Between emotional stability and intelligence the correlation is zero. Apparently, the individual of relatively high intelligence within the college population is quite as prone to emotional disturbances as the person of lower intellectual ability. The evidence from other sources where decidedly wider ranges both of emotional disorder and intelligence score were taken into account indicates that individuals of low mental status are more likely to manifest neurotic disturbances than those of normal or superior intelligence.[7] Perhaps a true answer to the question here raised would read to the effect that people of lower intelligence are more likely to succumb to their emotional difficulties and to manifest overt symptoms, while the person of higher mentality, although quite as much exposed to conflicts, painful memories, and awareness of frustration (which may be even more acute by reason of his greater sagacity and susceptibility to subtle influences) will be able to

[6] Notably L. M. Terman, *Genetic Studies of Genius*, Vol. 1, Stanford University Press, 1925; and L. S. Hollingworth, *Gifted Children*, New York, 1926.

[7] H. L. Hollingworth, *The Psychology of Functional Neurosis*. Appleton, New York, 1920.

cope with these on a more rational basis. The present results do not throw further light on the issue here involved.

Other results indicated in the table need not be elaborated in further detail. The correlations are, on the whole, of a positive order, and are in keeping with the general principle of the positive correlation of desirable traits, or, as otherwise stated the principle that "correlation rather than compensation" is the rule in the development of human nature.[8]

[8] Hollingworth, *Mental Growth and Decline*, New York, 1927, p. 27.

SOME ASPECTS OF THE SOCIAL PSYCHOLOGY OF FUTURISM

By NATHAN ISRAELI
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No survey of reactions to the future has been made as yet, although this field covers many different problems of interest to psychologists. It is the aim of this paper to outline, at least, some of the aspects of a futuristic psychology. It includes theoretical questions or slants. The first part of the paper is theoretical and is concerned with the notion of previous future cues, maps-of-the-future scientifically or imaginatively constructed, a Museum of Future History, Utopiology, and the retroactive influence of the future on the present. As a theory, Futurism is a reversible Pragmatism and points to the possibilities in harnessing the future for the present. In the last sections of the paper, analysis is made of the social attitudes to the future which may range from the extreme utopian to the practical, and to the other extreme, the revolutionary.

I. Futuristic Redintegration

The psychological foundations of the theory of futurism are not located inherently in any particular doctrine but for convenience the doctrine of redintegration as formulated by Professor H. L. Hollingworth will be embodied. In taking over this doctrine another dimension is added to it. Curiously redintegration directly restricts behavior and experience to previous situations or, as it were, chains the mind to the past. Is it not this infinite repetition of the past that the Gestalt proponents urge as the fallacy of associationism? Extreme reactions to this rigidity superimposed on behavior by previous situations may take the form of a belief in a mysterious propellent force immanent in the mind, in an élan-vital, or perhaps of a denial of causation. The future cue introduced into the formula of redintegration adds to it another dimension. *And future cues as the basis of futuristic-redintegration cut against the perpetuity of reactions in the present situation.*

To account for novelty in mental reactions, C. S. Peirce was forced to conclude that there is in the action of the mind "a certain amount of arbitrary spontaneity". In mental recurrence it was thought that "intellectual life would come to a speedy close".[1]

[1] *Chance, Love, and Logic*, edited by Morris R. Cohen, 1923, p. 231.

The original redintegration theory of Sir W. Hamilton led William James to observe that "the panorama of the past, once opened, must unroll itself with fatality to the end, unless some outward sound, sight, or touch divert the current of thought".[2] He also added to this Hodgson's law that interests are the clues to novelty. As a philosopher, James in one place stated that "Free-will pragmatically means *novelties in the world*, the right to expect that in its deepest elements as well as in its surface phenomena, the future may not identically repeat and imitate the past".[3] Why the external stimulus may result in new adaptations or in new responses is answered by C. S. Peirce in terms of arbitrary spontaneity in mental reactions and by James in an outward sound, sight, or touch. Stout turns the discussion into emergence. "Reproduction and association, taken merely by themselves, account for the renewed apprehension of what has been apprehended before; but they do not of themselves explain the emergence of any really new knowledge." And as for anticipation of future developments it is said that "if in perceiving A the mind looked onward to a further development of the present situation, B when it came would be identified with this anticipated development. It would be apprehended as something future relatively to A."[4] Accordingly the problem of novelty revolves upon a theory of emergence. This is not clearly developed and does not get much further than the others.

Futuristic-redintegration as it was first formulated[5] is the "establishment of cues of present situations not only on the basis of past situations but previous 'future' situations" and it adds to reactions previous future cues allowing for the formation, learning, and emergence of a variety of new reactions. The formula given by Hollingworth[6] may be transformed into one for futuristic-redintegration by the insertion of symbols for future cues. —A complex antecedent, ABCD—F (future situation) instigates a consequent, XYZ—F (the reaction being to a picture, conception of a future situation). Thereafter the consequent XYZ—F, or one belonging in the same class, may be instigated by the detail A, or a detail belonging in the same class, by virtue of the historic participation of A in the situation ABCD—F. A partial stimulus is substituted for a total previous-future

2 *Principles*, Vol. I, p. 570.
3 *Pragmatism*, 1907, p. 118.
4 *A Manual of Psychology*, 1921, p. 441.
5 *Psy. Bul.*, 25, 1928, p. 367.
6 *The Psychology of Thought*, 1926, p. x.

antecedent.—Apparently this carries further the fundamental point of Stout on anticipation and elucidates the theory of Warren which defines anticipation as an *inversion of temporal order* and avoids the pitfalls in the theories of time with the explanation that no reversal of the flow of time or "any other mystical paradox" is meant. Warren meant "merely that certain events which usually occur in the order A, B, C, D come to occur in the order A, C, B, D. In such cases we may say that C *anticipates* B." "In the ordinary causal sequence represented by A, B, C, D...L, M, N, O, the event B is the usual antecedent of L, M, N, O. In purposive activity certain of these events, M, N, come to be antecedents of B, the series becomes A, M, N, B, C, D...L, O."[7] When C *anticipates* B it is here maintained that there is nothing more or less involved than futuristic-redintegration with its previous future cues. That is what Professor Warren would mean perhaps by an inversion of the temporal order. From these considerations it is but a step to formulate *a redintegration theory of time* since the past is remembered by "encountering a new event, which is an associative surrogate or symbol for the past event",[8] and the future is denoted more or less in the present situation by previous future cues. This explains what is meant when it is said that, "The past and the future meet and mingle in the ill-defined present"[9] (Whitehead), or that "There is no sharp distinction either between memory and the present immediacy or between the present and anticipation. . . . Our own present has its antecedents and its consequents."[10] Redintegration-time is a continuity of situations each one having its own predominant cues for reaction: instigating and specifying cues arranged in chronological order the location of each being definitely delimited by the time coefficients.

II. Futuristic: Mapping Out the Future—the Methodology

Futuristic as a unique combination of methods already known for component analyses of a given situation is not essentially another predictional method. It functions to construct future-situations in the light of developmental-possibilities derived from a working knowledge of history with ample corrections or leeway for the factors of emergents.

For analysis of situations there are many methods. White-

[7] *Jr. Phil. Psy. and Sci. M.*, 1916, 13, p. 30, p. 60.
[8] *Psychology: Its Facts and Principles*, 1928, p. 259.
[9] *The Concept of Nature*, 1920, p. 73.
[10] *Ibid.*, p. 69.

head's conception of the diversification of nature and extensive abstraction method are applicable. By the former is meant a "process of breaking up the subject-matter of experience into a complex of entities" which are "elements, or aspects of nature".[11] The method of extensive abstraction is a neutral analysis of a situation into events, levels, planes, event-particles. Futuristic applies the method in dynamic manner and sweeps over the "passage-of-nature" and using different criteria reduces nature to a system or hierarchy of entities, simple and complex. To give a dynamic picture of nature in time the hierarchies are linked up in a continuous chronological manner. Not empty cross-sections, not slices or momentary analysis but a genetic picture or moving-pictures of nature from past into the future. In order to map out the future, the direction that tracks in the present system will assume in the future must be estimated. That is the problem of emergents.

Some maintain that science cannot predict characteristics of emergents. But for present purposes the future gestalt or the emergent must be predicted. An illustration of emergents may be found in Professor Woodworth's conception of Gestalt-Psychology and the concept of reaction-stages. He would say that a gestalt appears definitely at each level or stage in the perceptual reaction as an emergent from the in-between analytical events. "Each stage is aroused by the preceding stage and in turn arouses the stage which follows. The later stage is not a continuation, or development, or organization, or re-adjustment of the preceding stage, but a fresh activity involving, no doubt, fresh neural or muscular mechanisms."[12] The future gestalt or emergent offers a crucial problem for the theory. Wheeler cites[13] Sumner and Keller (Science of Society, p. 2220) as saying that "no one could predict the characteristics of gunpowder from those of sulphur, charcoal, and saltpeter". Turning to a hypothetical picture of the development of color vision such as afforded by the Ladd-Franklin theory it will be possible to parallel this example. Color evolution in the present third stage is not complete as the color blue (with implicit factors in the second stage) has never been differentiated into a blue-x and a blue-y. Here is a definite possibility developmental scheme for future color-vision as the way of future color evolution is pointed out in that red may break down into red-x, red-y, and possibly into a red-z. But the nature

[11] *An Enquiry Concerning the Principles of Natural Knowledge*, 1919, pp. 59–60.
[12] Washburn Commemorative Volume, *Am. Jr. Psy.*, 1927, p. 62.
[13] *Emergent Evolution*, 1928, p. 62.

of these discriminations cannot be foretold. Such prediction of the mechanics of future color vision rests on the assumption that the theory can allow for no other way of further development. Granting the premises, it would follow that the possibilities for a shift from a static subsistence of implicit factors to a dynamic, functional state are predictable. If the nature of a gestalt or emergent cannot be previsioned, the possibilities for a future gestalt can be mapped out.

Linked up with this problem of emergents is that of variability. (The connection between the two may not appear to be clear.) Perhaps experimental evidence could be sought for as knowledge of the variability of an aggregate opens up the field for the study of its possibilities for further development. There may be a mathematical relationship between emergence-potency of an aggregate—the chances for shifts to higher and higher levels—and its variability coefficient. Comprehension of future developmental possibilities is contingent upon a knowledge of the range and curve of oscillations of experienced objects. A paradox or dilemma may appear here since one speaks of the "instability of the homogeneity" (Spencer) and as it was found by Hollingworth in his experiments that the "Coefficients of Variability are closely related to Stability Indices, and vary inversely with drug resistance (alcohol)".[14] The simpler is the more unstable and hence has many developmental possibilities, but the highly complicated because of its intrinsic integration must have considerable intra-variability allowing greater scope for actions, more *d-p*'s. Although an integration of the parts in a more complicated structure may require a higher stability. As an additional note here it may be indicated that Dodge criticized the stress on variability as due to errors of observation on the ground that variability is the normal thing and that the variable phenomena in psychology are "not mere accidents of measurement, but are inherent in the facts which are under investigation".[15]

Can social phenomena be mapped out, can the social psychologist apply his data to determine developmental possibilities of social phenomena? Professor Franz Boas inquires in his latest book as to whether anthropology can "help to control the future development of human culture and well-being or must we be satisfied to record the progress of events and let them take their course"? He admits that accidents cannot be eliminated and that in social phenomena "prediction is precarious, if not impos-

[14] *Jr. Exp. Psy.*, 8, 1925, p. 207.
[15] *Science*, 1924, 59, p. 264 ff.

sible".[16] Prediction when quantitative anticipates the amount of error, as through the standard error of estimate which "is probably the most practical way of evaluating the effectiveness of a coefficient of correlation".[17] Prediction can't get very far in social events.

Following this Boas asserts that "Laws of development, except in most generalized forms, cannot be established and a detailed course of growth cannot be predicted." But Boas refers to highly complicated phenomena and insofar as naïve quantitative conceptions of rhythmic changes in the sociological realm as the cyclical hypothesis of Spengler cannot serve to analyse past and present events he is justified. Prediction will be of more avail as more data accumulate and as the balances used will be more accurate and sensitive. At least Hollingworth's twenty-three laws of normal development (*Mental Growth and Decline*) collected from various sources suggest to us how psychological developmental charts for prediction purposes may be used in the future. Similarly laws of development in social events may serve some day for prediction. And is the problem of "accidents" (Boas) or of emergents insurmountable?

Futuristic then would shift from prediction to prophecy, understanding by prophecy the symbolic manipulation of experience supplementary to or extensional of the work of prediction. *Prophetics* is the formal term coined perhaps by C. A. Mace in *Sibylla or the Revival of Prophecy* and in another volume of the Today-Tomorrow series E. E. Fournier d'Albe proposes the process of extrapolation from exponential curves.

Qua Vadimus, Some Glimpses of the Future, 1925, p. 34, "proceed by 'extrapolating' the curves representing progress made hitherto, but will always allow for unexpected new departures in what are already known to be possible directions."

Prophecy is more effective the more complicated the problem. And in social phenomena it assumes an important rôle. It is given more and more leeway as the event becomes more and more remote in the future. For as a situation recedes in futurity from the present the possible maps of that situation multiply as if in a certain ratio. Prophecy hence stumbles against the pluralistic nature of the future developmental possibilities and is highly speculative for it is non-experimental and cannot be statistically checked-up. No wonder Professor Joseph Jastrow recently stated that the "attractive field of forecasting is the large one lying between prediction and prophecy".[18] Prediction has its statistical technic but prophecy has its imaginative basis. It is as if it leaps the experimental fields (taking them into due consideration) into the realms of theory and hypothesis and through abstract symbolic manipulation arrives at its results. Whereas the scientist can check up on his symbolic manipulations, and the artist can represent or render in concrete form his manipulations, the

[16] *Anthropology and Modern Life*, 1928, pp. 235–236.
[17] H. E. Garrett, *Statistics in Psychology and Education*, 1926, p. 288.
[18] *N. Y. Evening Post*, Jan. 7, 1929.

prophet cannot set up pure future situations in social affairs. Futuristic is limited only by the *method of limitations* which would admit the possibility of anything in the future except that it be in opposition to present basic concepts as the speed of light. Outside of that prophecy is unbounded. Only the method of limitations can serve as a guide for "we can foretell little of the future save that the thing that has not been is the thing that shall be; that no beliefs, no values, no institutions are safe".[19]

III. Utopiology and Museum of the Future

Furturistic leads to a *Utopiology*, to a scientific and systematic writing of utopias. A constructive criticism of the excellent *Today-Tomorrow* series would indicate that as futuristic works they do not go far enough. The small size of the books may account for their narrow scope. Application of the methodology of Futuristic would suggest that such books and utopias be written systematically. Writers of such books ought to treat their subject or their specialty in the light of the methodology outlined above. Each book ought to map out developmental possibilities in the subject under discussion. No utopographer should write all the time a transitory reverie, a leisurely produced picture of the future, for mere blindfold visions don't go far enough. Poets or scientists may write utopias but there is a technic of writing stories of the future. That technic, to repeat, is to be found in Futuristic.

Maps-of-the-future and utopias then embody future cues and a supplement to them will be the *Museum of Future History*. In this museum will be placed the maps and the utopias, there will be objects, specimens and pictures. Social psychologists in following this out can find many problems. What would the reaction of people, groups, and nations be to such a museum or its exhibitions? When a situation would lead to conflicting interests, what would result? As in this hypothetical instance. The League of Nations has a committee map out the next century's possibilities in international affairs in the Orient. Three principal nations have representatives on that committee. Opinion is that war is likely by the beginning of next century. But as for the outcome of such friction there would be three different opinions. While the map would bear a mark to suggest possibility of friction as for the consequences of the friction there is a conflict of opinion. No country would allow a map-of-the-future to represent future possibilities for military defeat. There would be a rigid

[19] J. B. S. Haldane, *Daedalus or Science and the Future*, 1924, p. 87.

censorship policy. Yet the Museum of Future History would make public opinion less dull, invariable, or backward. All fields of endeavor would be instigated to accelerate progress.

IV. Social Attitudes to and Interests in the Future

The Social Psychology of Futurism touches upon many interesting problems in its consideration of social attitudes to and interests in the future. One ought to trace the historical development of reactions to future events. A survey would include anthropological data on variegated forms of divination among primitives and would look into astrology which maintained an important rôle through the ages. In the rough and hazy notions of recurrence, rhythm, and continuity in Nature of the primitive mind are to be found origins in one way or another of the scientific method. The primitive attitude to the future is bound up in the supernatural which it aimed to manipulate. Of interest also are movements normal and abnormal such as were caused not infrequently by the Messianic idea. Many have been the uprisings at various times due to dissatisfaction with the status quo and desire for immediate futurization of the present. Of great importance similarly are all sorts of revolutions and radical social upheavals resulting from an extreme futuristic temperament. This revolutionary trend is not common in everyday-life although all things told it may be a normal event in a larger sequence of events.

Pragmatism regarded as an attitude to the future is neither a conventional, stand-pat affair nor a violent, revolutionary adjustment. It seeks a unit-constitution-of-society where new units would replace almost automatically the worn-out or obsolete ones or a "continuous process of pruning, and of adaptation to a future ever requiring new forms of expression, is a necessary function in every society". (Whitehead)[20] A pragmatic attitude toward the future is a critical evaluation of the past and present in terms of the near-future. William James put it in this manner: "We live forwards, a Danish thinker has said, but we understand backwards. The present sheds a backward light on the world's previous processes. . . . This regulative notion of a potential better truth to be established later, possibly to be established some day absolutely, and having powers of retroactive legislation, turns its face, like all pragmatic notions, towards concreteness of fact, and towards the future."[21] Futurism as a social philosophy would

[20] *Symbolism*, 1927, p. 61.
[21] *Pragmatism*, p. 223.

translate this retroactive legislation into ordinances for present behavior and experience from its study of future possibilities. The future would be harnessed for the present. Such is the pragmatic program of Futurism. Social engineers would aid the progress of civilization by allowing only consequential means and ends to survive the exacting turnover of time. Futurists would carry the pragmatic concept of "retroactive legislation" much further as they would aim at a psychological attunement of a civilization that it may function in a well-balanced manner on levels, react to cues, and embody criteria of the future. Futurism is a logic of invention and motivates creative work on the basis of previous future cues. A futuristic psychiatrist in calculating systematically possibilities in the future for research in his field sets up future cues thereby and is bound sooner or later to be retroactively influenced in his own work. In this manner previous future cues when reacted to result in an improvement of instruments, technic, or interpretation. Futurism thus is a logic of science and invention and leads incidentally to an acceleration of emergent-evolution. That is the pragmatic attitude towards the future carried to its logical conclusion—a reversible pragmatism.

Utopian and legislative attitudes have been characterized by the most brilliant literary futurist of this century, H. G. Wells. He divides people into two types: the legal-type which is grooved into the past and the creative or legislative type that "sees the world as one great workshop, and the present is no more than material for the future, for the thing that is yet destined to be".[22] The legal type is more ancient and more predominant because of our "ignorance of the future and our persuasion that that ignorance is absolutely incurable".[23] We know more about the past than our ancestors did for the "educated man of the sixteenth century was as certain of the non-existence of anything before the creation of the world as he was, and most of us are still, of the practical non-existence of the future".[24] An analysis of attitudes towards the future by the present writer would parallel that of Wells and would point to a statistical distribution of attitudes towards the future ranging all the way from legislatorial to the utopian. Writers of utopias have been looked down upon as unmindful of present conditions or of certain probabilities. Some utopias may sever relations completely with the present and past and jump huge gaps of time into a universe existing in a dimen-

[22] *The Discovery of the Future*, 1913, p. 7. Cf. Nature, 1902, **65**, pp. 326–331.
[23] *Ibid.*, p. 22.
[24] *Ibid.*, p. 27.

sionality all its own with a unique time-and-space system. These utopias lack the sense of reality, enwrap the reader in cryptic thoughts and unravelable moods. On the other hand, a scheme of the social reformer is directly adaptable to present situations demanding immediate action. The dynamically futuristic revolutionist attempts to telescope or merge the two extremes. A continuum from utopias inapplicable to present situations, ostensibly surcharged with enormous energies-conceptions that are written almost in a meaningless language but nevertheless exert a magical influence—to legislative programs involving huge expenditures in the near-future, to the extreme of the revolutionary program for an immediate overturn of the present structure of society. In between non-this-world flights of the utopian imagination and practical legislative programs there are all sorts of utopias, predictions, venture, guesses, and speculations concerning the future. Another quantitative aspect of Futurism is in the measurement of a plan in terms of the future, immediate or remote.

As for other measurements, there are genetic and developmental observations and inquiries to be made. A developmental-possibility chart would indicate at any particular stage an outline of one's own map of the future.

V. Negative Aspects

Many are the negative aspects and abnormal consequences of social futuristic attitudes as illustrated by the following hypothetical but relevant illustrations: (1) Crowds of people gather about Grand Central and Pennsylvania terminals demanding a complete shut-down of these stations and immediate inauguration of aeronautic communications to replace the ordinary train commutation service because of the report to Congress by its Committee on Aviation that by 1945 trains and subways will become obsolete; (2) a lawyer cites a book on future cases by a dean of a leading law-school. These are abnormal futuristic reactions. There is a shilly-shally attitude to the future and present crystallized in one word by Wells—*meanwhile*. One of his characters pictures a utopian future but is wont to cut himself short with the statement: "these things are not for us. They will come. Meanwhile—"[25] The relativity attitude that sees only perpetual flux is represented by the critic of 1940 who according to Mr. Henshaw Ward "will also blow some ashes from his desk one

[25] *Meanwhile*, 1927, p. 49.

day. These will be the remains of the creative intellects of 1926".[26] Dr. Roback gives the answer to Wells and Ward. It is the futurist who among others accelerates progress and as a reformer he looks ahead of time and sets the standards that will be adhered to tomorrow. The futuristic personality may be considered abnormal according to present indices but as an extraordinary individual he directs movements and activities into new channels.[27] He changes the direction of progress. Nevertheless it is true that those who would futurize without keeping within present bounds and limits are sure to make inadequate, faulty, or incorrect adjustments. One cannot evade a threatening famine or pestilence with a serene day-dream about the life of the thirtieth century. And the nonmelioristically inclined might tend to establish destructive and deleterious previous future cues. The abnormal consequences of reactions to previous future cues are legion.

Reactions to future hopes as a motivation leads under certain circumstances to abnormal, ill-adjusted actions. Utopias are abnormal when a flight-from-reality[28] is interpreted as such. Riotous reactions to the future are exploited by newspapers who manipulate the sensationalist values of future experiences and events.

VI. A Comment on the Previous Future-Cue

As for the previous future cue which is the psychological hinge of the doctrine there is some experimental work to be reintegrated into this conception as the complication-experiments, and applied-experiments (Lahy, 1927). A parallel doctrine in mathematical (meta-) physics is that of Whitehead's imaginary events. "There are imaginary events—or, rather, imaginations of events—but there is nothing actual about such events, except so far as the imagination is actual."[29] And the imaginary events may be futuristic: that is all that the previous future cue connotes. Only if a wealth of anthropological and psychological information is to be ignored can such a notion be deemed as esoteric or incomprehensible. A systematic mapping out of futures, or future situations, on the basis of analysis of history gives one cues that are future in the sense that the thought, orientation, adjustment, con-

[26] *Thobbing*, 1926, p. 132.
[27] Character and Adjustment, *Psyche*, Oct., 1925. The Psychology of Character, 1927, p. 516.
[28] Lewis Mumford, *The Story of Utopias*, 1922.
[29] Cf. footnote 12, op. cit., *supra*, p. 62.

figuration is characterized, which cannot be objected to, by future temporality reference. That is all that is meant by knowing the future which is indeed *non-existent*. (The redintegration theory of time here broached throws light on this.) And statements like the following either beat around the bush or are meaningless: "Why we do not know the future is again the question of psychology. Ignorance of the future, like the existence of the material universe, is a clue to the constitution of our minds." [30]

Nor can one experiment with pure-future-situations.

[30] J. W. N. Sullivan, *Gallio or the Tyranny of Science*, 1928, p. 26.

A CASE STUDY IN DEAF-BLINDNESS[1]

By RALPH V. MERRY

I. Introduction

THE double sensory deprivation of blindness and deafness constitutes an interesting, though difficult problem in education and social adjustment. Those who possess but a superficial knowledge of the subject of sensory defects cannot easily understand how the loss of two so important factors in mental development can result in anything less than idiocy. An example of this attitude is shown by a conversation which actually took place between a visitor to a certain institution and a member of the staff. The visitor had been observing a demonstration of the abilities of a deaf-blind pupil and finally asked:

"Is he really blind?"
"Yes."
"Can't he see?"
"No."
A pause, then:
"Is he deaf?"
"Yes."
"Can't he hear?"
"No."
Another and longer pause, then:
"How does he know when he's asleep?"

Amusing, no doubt, yet the ideas of this visitor regarding deaf-blindness are fairly representative of those held by the majority of persons with full sensory equipment. It is exceedingly difficult to correct this popular misunderstanding and this alone forms no small part of the total problem of normalization. If sympathetic interest and understanding could be substituted for the too common ignorance and sentimentalism the task would be rendered considerably easier.

Dr. S. G. Howe demonstrated many years ago by his successful training of Laura Bridgman that deaf-blindness did not necessarily mean that such an individual was uneducable. It is true that his pupil never learned speech and never appears to have

[1] The writer wishes to make grateful acknowledgment to those of his friends who assisted in the preparation of the present study.

attained what could be regarded as a free and easy literary style, but she was very far indeed from being an idiot or a moron.

The greater achievements of Helen Keller under the painstaking and faithful assistance of Miss Sullivan illustrate the intellectual level which at least some of the deaf-blind may reach if proper opportunities are forthcoming. It seems strange that the widely-known success of Helen Keller should not have influenced public opinion in respect to sensory deprivation more than it has done. The only plausible explanation seems to be that she is regarded as bordering on the supernatural—a genius entirely above the common order of mortals, and therefore no criterion by which to judge the capacities of the deaf-blind as a class.

While the present writer has no wish to belittle the truly great achievements of Helen Keller, it is but fair to point out that no other individual with like defects appears to have had equal educational opportunities. The case of Laura Bridgman represented the first attempt to educate a deaf-blind individual, and naturally, the working out of technique by a method of trial and error, although it benefited those of similar handicaps who came later, was not destined to bring out the pupil's entire potentialities.

During more recent years the tendency has been to abandon the individual case method employed in the training of Helen Keller and Laura Bridgman, and to distribute the few deaf-blind individuals of school age among institutions for the blind and institutions for the deaf. This is unfortunate, since they belong neither to one group nor to the other, and welcome in neither. Schools for the deaf have neither the apparatus nor the time to deal with one who has no vision, while schools for the blind do not wish to be troubled with pupils who cannot hear. Pupils and teachers in both types of institution are either openly antagonistic or simply allow the deaf-blind individual to follow his own devices. Consequently, no matter which institution he may attend, he will be badly adjusted both educationally and socially.

A combined individual case and group method of approach would seem to be the most satisfactory solution of the problem. Individual differences, innate and acquired, play so important a part in the training of the deaf-blind that a careful study of these peculiarities is necessary to a complete understanding of individual abilities and shortcomings. After a thorough study of this sort has been made, the education and socialization of the individual can proceed far more effectively. It cannot be denied that true socialization of the deaf-blind is extremely difficult. The factor of deafness constitutes a more serious social than educational

handicap. As lip-reading is not easily accomplished by touch, communication must be carried on by signs of some kind, and is, therefore, limited to those who have sufficient interest in the case to take the time and trouble necessary to converse in this manner.

Whichever type of school the deaf-blind pupil may be attending, he will be able to participate in certain extra-curricular activities with the other pupils. This, in itself, will act as a socializing agent. It can hardly be gainsaid that the peculiar case of the deaf-blind demands individual attention during the entire educational period. Whether this individual attention need be as constant and as close as that shown in the case of Helen Keller and Miss Sullivan is another question. It is difficult to say, also, whether these individuals belong more properly to the deaf, as a group, or to the blind. It is questionable, too, if an institution where special technique could be developed for the education of the deaf-blind would not be the most advisable solution. These questions cannot be answered with finality but, in any case, it seems fairly certain that deaf-blind pupils need a large measure of individual attention to insure normal development.

The present case study is designed to illustrate the truth of the foregoing statement. Other studies of the deaf-blind have been made, such as the diaries kept by the teachers of Laura Bridgman,[2] Miss Sullivan's notes on Helen Keller[3] and Mlle. Rocheleau's biography of Ludevine Lachance.[4] These, however, contain so much relatively unimportant detail that it is difficult to separate the significant facts from the body of the account. Miss Keller's subjective study[5] is interesting and instructive, but so highly-colored with imaginative material that one finds it difficult to isolate the actual facts.

The subject of the present study, hereafter referred to as S., came to the writer's attention in October, 1927. He was asked to assist S. in the English work of the eighth grade with which he appeared to be having some difficulty. He was told, when he inquired concerning the ability of S. for school work that he *could* work, but was very lazy and had no ambition to improve in his studies. It was implied that his mentality was fair, although he was treated as a small child notwithstanding the fact that he was well on in adolescence.

From October to January, the writer spent three hours weekly

2 Howe, M., and Hall, F. H. Laura Bridgman.
3 Keller, Helen. The Story of My Life.
4 Rocheleau, Corinne. Hors de Sa Prison.
5 Keller, Helen. The World I Live In.

assisting S. in his English and incidentally, trying to gather all possible information regarding his personal history and his capacities. In February, S. came to the writer two hours a week for history. At this time, it was determined to make a thorough case study of S. and additional time was spent in giving mental and educational tests, and in collecting data of various kinds. From February 1 to May 1, a minimum of six, and a maximum of twelve hours weekly was spent on this study, not including after-school and Sunday talks.

The results obtained appear to have justified the time expended, both for the benefit to S. and for the light thrown on the difficulties attendant upon the education of the deaf-blind group. The data are presented in as brief, clear, and complete a manner as possible. The conclusions are drawn in a spirit of conservatism with no attempt at dogmatism or finality. It is hoped that the study may prove of general interest in the field of educational and social psychology as well as to those more directly concerned with the education of sensory defectives.

II. The Case

(A) *Personal and family history*

S. was born in one of the Western agricultural states, June 14, 1909. He is the eldest of a family of six, having four brothers and one sister, all in sound physical condition. The family appears to be of the ordinary agricultural type, steady and industrious, though distinctly not brilliant. Prior to the death of the father in the summer of 1919 financial circumstances were fairly comfortable. He owned a small farm, and also drove mail from a nearby railroad station to a small town some miles distant. Both father and mother had very limited educational opportunities but it seems that S. and his father were excellent friends and had the latter lived, S. would doubtless have met with more sympathetic understanding from his family than he has received.

After his father's sudden death from heart failure S. worked very hard assisting his mother who undertook to carry on her husband's work as mail carrier and also to keep the small farm running. He had never been particularly robust and found the work extremely exhausting. Besides his farm work, S. attended the district school but, according to his own report, was unable to keep up with his class because of his heavy home duties. The teacher seems to have been one of the type, fortunately becoming obsolete, whose chief aim in school was to mete out as many disagreeable punishments as possible.

One day in April, 1920, S. missed several words in spelling. He had had extra spring chores to do and had not found time to prepare his lessons. As punishment for this grievous misdemeanor, the teacher compelled the child to sit on the floor with no support at his back and with arms held straight out in front of him. He was forced to remain in this position for several hours until practically exhausted.

Already over-strained by work too hard for him, this added trial brought on acute cerebrospinal meningitis, which resulted in complete loss of sight and hearing. Thus, at approximately the beginning of his twelfth year, S. was deprived of two of the most vital organs of sensation.

Returning home from the nearest hospital after his recovery, S. was regarded by his family as being hopelessly defective and was looked upon as a permanent liability, requiring care which he could never help to earn. It must be pointed out clearly that they were kind to him in the sense of physical kindness, that is, they attended to his bodily needs, but no attempt was made to talk to him or keep him in touch with the world. He was simply allowed to vegetate, passing the majority of his time sleeping. In 1921 an uncle took him to a chiropractor in a neighboring city and he spent some months under treatment but, needless to say, with no noticeable results.

S. remained in this vegetative period for two years, until, in the autumn of 1922, through the interest of friends who had become aware of his case, he entered the State School for the Blind. Here he remained with but a short break, until Christmas of 1925. He returned home, and though he had made remarkable progress at school his family still preserved much the same attitude toward him as they had hitherto held. He was eager to talk, to exchange ideas, and to learn things about the world. They made no effort, however, to satisfy his intellectual hunger, attending only to his physical needs.

In the autumn of 1926, through the influence of a prominent worker for the blind who had met S., he was brought to a large eastern institution for the blind. He remained here during the school year of 1926–27, returning to his western home for the summer vacation. In September, 1927, he again came east to school, and during the following month, came to the attention of the writer. S. says since coming east, his family are beginning to realize that he has other than physical needs and they are now making greater efforts to develop a sympathetic understanding toward him.

(B) *Mental and educational level*

Practically all the teachers who worked with S. subsequent to his sensory deprivation rate his intelligence as "superior". They base their estimate upon the quickness with which he grasps new situations, his ability to comprehend explanations, and his keen sense of humor. In educational achievement, he had completed the work of the fourth grade prior to his illness, but owing to the long period of neglect which followed it, he appears to have slipped back to some extent. When he left the western school for the blind, he had completed the work of the sixth grade, and he is at present doing some subjects in the eighth grade, and some in the freshman year of high school.

To check up these general estimates, the writer determined to give S. certain selected intelligence and achievement tests, not with any intention of assigning a quantitative score, but rather to examine carefully the qualitative responses with a view of discovering to what extent these accorded with teachers' opinions. The tests used were derived from three main sources: (1) the Hayes-Irwin adaptation of the Stanford-Binet Scale,[6] (2) Pintner's Scale of Performance Tests,[7] and (3) adapted achievement tests for use with blind pupils.[8] The vehicle in which the tests were given was a combination of the manual alphabet and the braille system, in both of which S. is proficient. He receives quickly and accurately, words spelled into the palm of his hand, and can also understand printed letters made with the finger upon his palm. He reads quite rapidly with the left forefinger alone, and writes quickly and accurately on a braille frame. He can also use a typewriter with a fair degree of speed and precision.

Of the tests selected from the adapted Stanford-Binet Scale, the vocabulary was probably the most diagnostic. The technique followed, was to spell the word to S. by the manual alphabet, have him repeat the word, to be sure he had received it correctly, and then give the definition which was written down by an assistant. S. gave satisfactory definitions for 17 words, establishing his vocabulary level at twelve years. Certain definitions were of intrinsic interest, for example the word "tap" was defined as "make a noise". This may indicate the retaining of a certain degree of auditory imagery which is associated with words expressing action. "Curse" was defined as "something disagreeable" but as it is difficult to get a satisfactory response to this

[6] Hayes, S. P. Ten Years of Psychological Research in Schools for the Blind. (Scale obtainable from S. P. Hayes.)

[7] Pintner, R., and Paterson, D. A Scale of Performance Tests.

[8] Hayes, S. P. Self-Surveys in Schools for the Blind.

word from most children this vagueness is not surprising. Other definitions were counted as unsatisfactory because of insufficient detail, such as "pork" defined as "hogs or pigs" and "outward" defined as "at a distance". One or two definitions were entirely wrong, such as that given for "ramble" which was "a speed, hurry". Thinking the word had been confused with "scramble" it was given a second time, evoking the same response. The confusion of the two words, may, nevertheless, exist in the mind of S. though he is not conscious of it. Other words including "hysterics", "brunette", etc., were unknown. Many of the definitions given, however, were excellent, for example, "skill" was defined as "ability or power", "regard" as "a person's friendship", etc.

Two other tests of those assigned to year 12 were given to S., viz., No. 3 and No. 6. The former was the "finger-tapping" test in which the subject taps the fingers of his left hand with the forefinger of his right in the order similar to that in which the examiner touches them with the tip of a pencil. This test was passed easily by S. at this stage, but he failed on the more complicated form assigned to year 18.

Test No. 6 is the regular "similarities" test in which the subject gives a similar quality possessed by a group of three things. S. passed this test without difficulty. The test of interpretation of fables, was given with the 16-year group.

Four tests from the 14-year group were given, *viz.*, Nos. 2, 4, 5, and 6. No. 5, consisting of simple arithmetical reasoning, was the only one passed by S. In test 2 (defining abstract forms) "pity" and "envy" were correctly defined, but "revenge" was given as "taking advantage" and "justice" was defined as "an officer". "Charity" was unknown. The responses to test 4 (analogies) were also correct at first, but to the situation, "Storm is to calm as war is to—what?" S. replied "battle", and to that of "Known is to unknown as present is to—what?" he gave "absent". He failed to understand "Truth is to falsehood as a straight line is to—what?" The dissected sentences comprising test 6 were given to S. written in braille. Previous tests in this group had been conveyed to him through the medium of the manual alphabet. S. successfully worked out the sentences but in two cases took more than the allotted time; 60 seconds were allowed for each sentence, and in one case S. took 80 seconds, in another 78 seconds. It was felt that this penalization on time was not quite fair to S. and that he should have received some credit for having correctly arranged the sentences. However, according to the usual method of scoring, no credit could be allowed. A comparison of

the results of this test with those obtained from Pressey's Verbal Ingenuity test indicates further that S. ought to have received at least partial credit on marginal errors.

Of the tests comprising the 16-year group five were given, *viz.*, Nos. 2, 3, 4, 5, and 6. Tests 2, 4, and 5, were successfully passed. The interpretation of fables (No. 2) was evidently easy for S. They were given to him written in braille and he was allowed to take his time to read them. His interpretation of "The Farmer and the Stork" differs from the expected response. He said, "It is well to keep out of the way of wicked people, lest we fall in the trap with them".

Test 3 (differences) was difficult. He could not give satisfactory differences between a president and a king, and made vague statements as "A president is not watched so closely"; "A president has more to do with the making of laws", etc. S. was able to solve the problems of fact (test 4) satisfactorily. These were given by means of the manual alphabet and the ordinary responses were obtained. He was also able to reverse the clock hands readily (test 5) which was somewhat surprising. It seemed to indicate the possible retention of considerable visual imagery, and this belief was borne out by the methods used by S. in attacking performance tests. Test 6 (problem of enclosed boxes) was too difficult for him. He got the first part of the problem but gave the same answer for the second and third parts.

In the 18-year group two tests Nos. 2 and 6 were given (finger-tapping and abstractions). S. could not follow the more complex order of finger-tapping, and either saw no differences in the abstractions, or did not know what they meant. No attempt was made to estimate an I.Q. on the basis of the foregoing tests, their qualitative value alone being of interest.

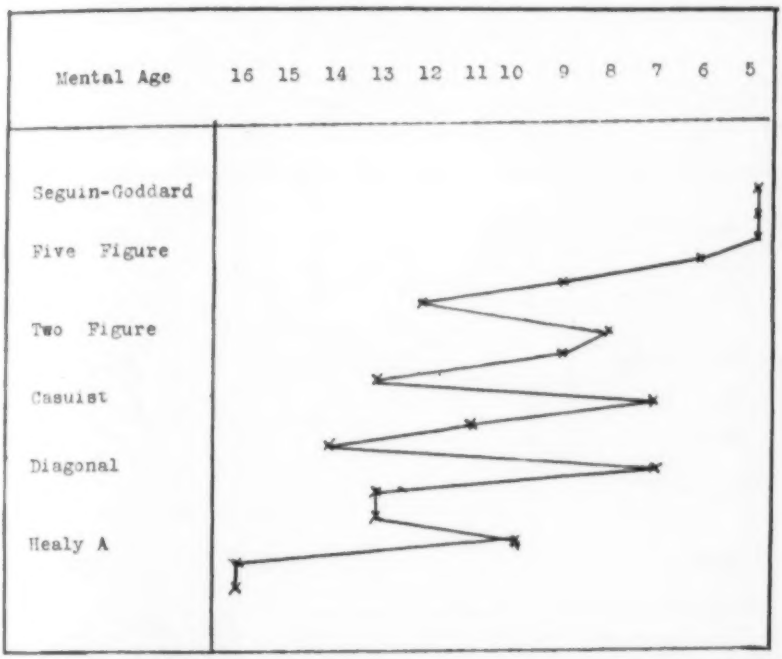
The performance tests given, and the results obtained are shown in Figs. 1 and 2. It will be noted that the scoring, according to Pinter's scale greatly penalizes S. in respect to time. It would naturally be expected that a blind individual would require more time in the performance of tests of this type than would one with normal vision. This time factor should therefore, not be taken too seriously. Fig. 2 shows that with regard to errors and numbers of moves, S. made a very creditable record. A re-standardization of the time limits, which would take lack of vision into account, would raise the scores in many instances.

In all these performance tests S. displayed forethought, planning ability, and quickness of learning. In most cases he first felt the board carefully, then examined the pieces, picked out those

he wanted, fitted them together and filled the figure upon which he was working. Again his method of procedure seemed to indicate the retention of visual imagery which enabled him to remember in visual terms, that which his fingers had felt upon the board and among the pieces. Whether or not this is true, he displayed considerable ability in remembering shapes and combinations of

FIG. 1

PROFILE SHOWING MENTAL AGE BASED ON PERFORMANCE TIME.*



* Comparison of Figs. I and II shows clearly that the normal time standardization of the performance scale is most unfair to a blind subject. Note the discrepancy between the mental age of S. as judged by (1) time; and (2) moves and errors.

shapes. His sense of form appeared excellent and he made no errors in selecting the right pieces for the right places.

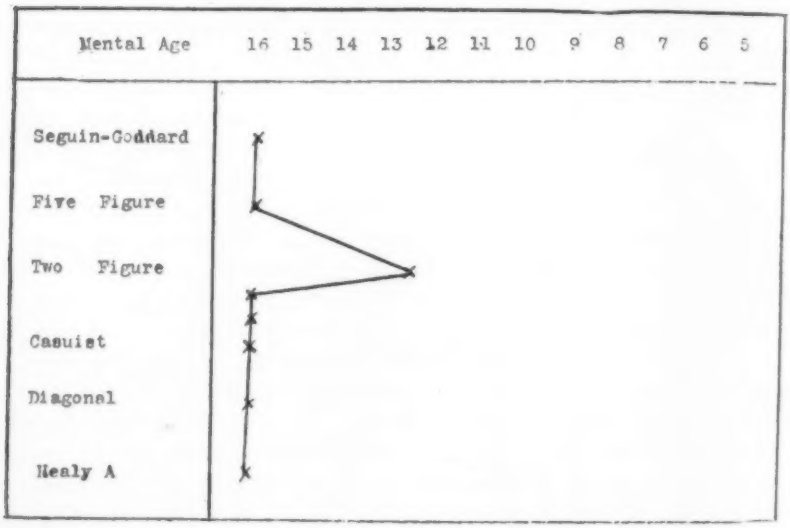
Fig. 3 illustrates the tests given from certain adapted achievement measurements. The scores are judged from curves based upon the performances of several hundred blind children. It will be seen that the achievement age does not vary greatly, and that it is approximately equal to the mental age shown by former tests. It is rather surprising that so good a score should have been made on Pressey's Moral Judgment test when so meager a knowl-

edge of abstract qualities had been shown by the Stanford-Binet. The discrepancy between the results of the test on dissected sentences contained in the 14-year group of the Stanford scale, and Pressey's Verbal Ingenuity, has already been mentioned.

The results of these tests indicate, with a fair degree of clearness, that while it is probably an exaggeration to speak of S. as mentally superior, his intelligence is nevertheless very good. His most serious retardation seems to be that of vocabulary which, according to Miss Reamer's findings[9] is common to deaf indi-

FIG 2

PROFILE SHOWING MENTAL AGE BASED ON MOVES AND ERRORS.



viduals. The most diagnostic and reliable test of intelligence for one in S.'s condition is probably to be found in the performance scale. Owing to his two years of complete vegetation, and his limited means of obtaining experience, we would naturally expect to find some retardation but there is no reason to believe, as far as test results are concerned, that S. was or is, mentally defective.

(C) *Dreams*

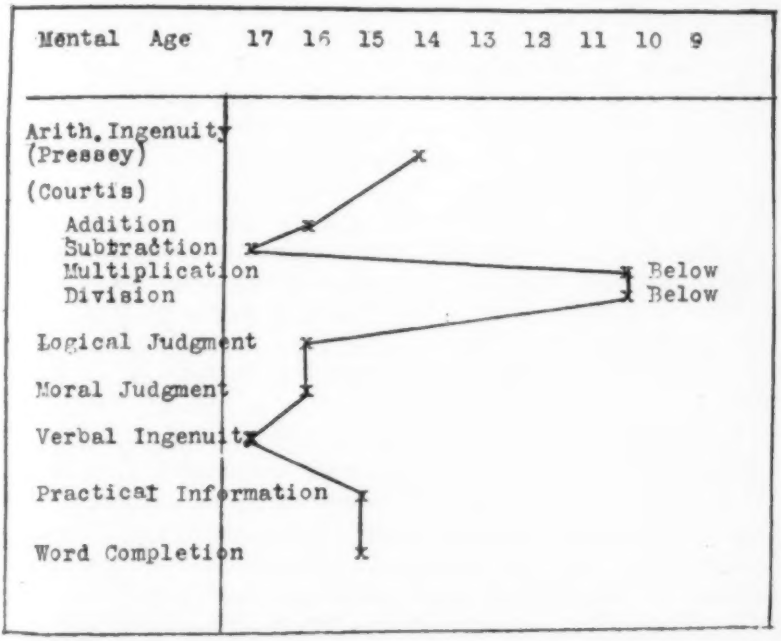
The impression, gained through his responses to certain tests, that S. retained some degree of visual and auditory imagery, was further substantiated by a study of his dreams. The method followed was to prepare a number of questions calling for simple,

[9] Reamer, J. Mental and Educational Measurements of the Deaf.

direct answers which would show clearly the type of imagery prevailing in dream life. Care was taken to eliminate in so far as possible, all chances of confusion or suggestion. The questions were given to S. slowly, through the medium of the manual alphabet, and his replies recorded verbatim.

The results obtained from a careful examination of these replies may be summarized as follows: (1) S. dreams a great deal. (2) Sometimes his dreams are coherent and natural, sometimes

FIG 3
PROFILE OF EDUCATIONAL ACHIEVEMENT TESTS.



unreal and distorted. (3) When dreams are natural and vivid, S. often remembers them over long periods of time. (4) Sensations of falling from a great height and fear of strange animals appear in his dreams, but no fear of fire or of death is evidenced. (5) Definite auditory sensations are experienced in dreams, *i.e.*, the hearing and enjoying of an orchestra, the recognition of friends by their voices, etc. (6) No conclusive proof of the existence of visual imagery in the dreams of S. was obtainable. He could not remember of ever "seeing" anything. He stated that he sometimes knew his friends just by "seeing" them, but it was

thought that the term "seeing" was used in a colloquial sense and did not imply actual visual perception. S. probably meant that in his dreams, he often knew his friends at once without any particular effort at recognition. (7) Sex dreams did not appear to be present. S. said his dreams were mostly about the boys with whom he came in daily contact although he did appear to be rather self-conscious and uncertain on this point. No further questions were asked, however, as a psychoanalytic interpretation was not being sought.

The dreams of S. are in many respects similar to those of Helen Keller[10] and Laura Bridgman, and also resemble, to a certain extent, the dreams both of blind and of deaf individuals.[11] There are, however, certain striking points of difference. Helen Keller's dreams show no fear of animals, but fear of fire and of death is prominent. Notwithstanding the fact that Laura Bridgman claimed to have auditory sensations, students of her dreams find no proof of the existence of either visual or auditory imagery.[12] She dreamed of fearing animals, however, and her sex dreams were reported as naïve and indefinite. Helen Keller's dreams appear to be essentially in terms of tactual experience and no visual nor auditory imagery appears.[13] It must be borne in mind, however, that with Laura Bridgman and Helen Keller sight and hearing were lost at a much earlier period than in the case of S. The dreams of both the deaf and the blind show fear of animals and of fire.

The fact that S. appears to have no proof of visual imagery in his dreams shows a discrepancy with the interpretation placed upon certain of his test performances. It is a question, nevertheless, whether visual imagery could entirely disappear while auditory imagery was so strongly retained. In considering the apparent preëminence of auditory over visual imagery in the case of S. an interesting point arises. When sight and hearing are totally lost in comparatively late childhood, does auditory imagery tend to persist longer than visual imagery? May it not be possible that certain tactual sensations, such as the vibrations set up by an orchestra or an organ, may be associated with auditory images, and thus serve to strengthen and perpetuate auditory imagery after visual imagery has practically disappeared? S., for example,

[10] Keller, Helen. My Dreams. *Century Magazine*, Vol. LXXVII.
[11] Kimmins, C. W. Children's Dreams. Chap. 7.
[12] Hall, G. S., Laura Bridgman. Mind. Vol. 4.
[13] Jastrow, Jos. The Dreams of the Blind. *The New Princeton Review*, Jan., 1888; Jastrow, Jos. Dreams of the Blind (from *Fact and Fable in Psychology*).

was very fond of going to the occasional school dances and sitting near the orchestra platform where he could distinctly feel the rhythmic vibrations of the dance music. In his dreams he often goes to dances and insists that he "hears" and enjoys the music. It is quite possible that the study of a large number of late adventitious cases of deaf-blindness would prove the foregoing theory to be erroneous, but it is nevertheless an interesting speculation and serves as a plausible explanation of the retention of auditory imagery in the case of S.

(D) *Speech*

During the two years in which S. was left to himself, his speech was almost entirely lost. Teachers who worked with him when he first entered the western school for the blind inform the writer that S. had formed the habit of forcing his voice through his nose, making most disagreeable sounds, and rendering his attempted words unintelligible. While no one at the school had knowledge of scientific methods of speech correction, their efforts in improving his speech met with considerable success.

Their first method of procedure was to overcome the antipathy which S. had formed for society in general and to encourage him to communicate with others and to be in their company. He was then shown how necessary it was for him to speak in a manner which could be readily understood if he wished people to talk with him. The desire for clear speech thus implanted in S. was fostered and assisted by every possible device, and when S. left this school his speech, though by no means perfect, could be understood with little difficulty.

Since his residence in the east, S. has had scientific speech training and the writer has endeavored to correct and assist him in every way possible. The chief faults of speech which are noticeable in S. are his tendency (common to most deaf persons) of accenting silent vowel sounds such as bas-e-ball, volum-e, etc., and in slurring over syllables in the middle of long words without proper emphasis.

If Gault's experiments with the teletactor [14] are sufficiently successful to demonstrate his method as feasible for teaching speech to the deaf, it ought to be of great service to S., since his major speech defects are exactly those which Gault's instrument is designed to correct.

[14] Gault, R. H. Drafting the Sense of Touch in the Cause of Better Speech. *Journal of Experimental Psychology*, September, 1927.

(E) *Physical Condition*

It has already been mentioned that S. was not a very strong child prior to his illness. Subsequent to that time his health was in a very poor condition. When he entered the western school he spent much time in bed, was very nervous and subject to frequent heart attacks. His health, however, gradually improved but he is still far from robust. He is well grown for his age and of good proportions. Since coming east the heart attacks occur much less frequently and with less violence. S. is, however, very nervous, subject to involuntary twitching and trembling. He is unable to endure long periods of sustained effort, and all tests given him were scattered over a period of many weeks to prevent any possibility of nervous strain. He has frequent headaches and his digestion is occasionally out of order, due for the most part to lack of exercise. He suffers a good deal from sleeplessness, particularly if excited or overtired. Consideration of his physical condition is necessary in connection with all his school work and recreation in order that suitable amounts of each may be arranged.

(F) *Moral and Social Traits*

The moral caliber of S. appears to be high. He seems truthful and trustworthy, frank and good-natured. He resents being treated as an inferior or as a small child, and is reticent with those whom he thinks he cannot trust. He forms strong attachments for those who are kind to him and is very loyal to his friends. None of his teachers believe him to have any undesirable personal habits. He is neat and cleanly and always presents a good appearance. As his hands are his chief means of communication, he feels he must pay special attention to keeping them clean.

S. does his work well alone but needs constant encouragement and guidance. The habits of idleness formed during his long period of listless home life still obtain to some extent. He cannot properly be called lazy, for he works well if his initiative and interest are enlisted, but if left to himself will waste most of his time dawdling. He is easily discouraged, and care must be taken in correcting his errors or he will cease trying. Altogether he possesses a personality which, if properly understood, is likeable and agreeable. One must not expect too much, and yet one must not treat S. as if he were distinctly deficient in mentality as well as in sensory equipment.

III. Conclusions

The conclusions to be drawn from the foregoing case study fall into two classes, (1) those affecting S. alone and (2) those affecting the treatment of deaf-blind individuals as a group. Among the first may be noted:

1. A knowledge of S.'s history, physical condition, intelligence, achievement level, and personal character enabled the writer and other teachers to adapt their methods to his individual needs. Changes brought about in this way have proved beneficial to S. and he has been happier and more successful in his work and recreation.

2. S. appeared to have considerable auditory imagery, but no proof of the existence of visual imagery could be established. His dreams agree in the main with those of other deaf-blind individuals and with those of the deaf and the blind as separate groups. His retention of auditory imagery may be due to the association of essentially tactual sensations with auditory images.

3. It was demonstrated that S. could not be expected to do satisfactory work if left quite to himself. He needed encouragement, motivation, and assistance. When these were present he worked with zest; when they were lacking he relapsed into inactivity.

4. It is apparent that S. needs, above all things, the social intercourse of friends who will enlarge his mental field and make him feel that he is in active touch with the world. Pupils of his own age, who regard him as something of a curiosity, should be encouraged to treat him as their equal and make an effort to talk with him either through the manual alphabet, which is easily learned, or by printing with the finger in the palm of his hand.

Conclusions affecting the treatment of the deaf-blind in general are:

1. The individual case method of approach is probably superior to any other in dealing with the deaf-blind. All facts concerning the individual should be gathered and interpreted before inferences regarding his capacities are drawn and a course of treatment adopted.

2. It is practically impossible to obtain a quantitative estimate of the intelligence of such an individual by means of any existing measurements. Year scales such as the Stanford-Binet are unsuitable, since in few, if any, instances can all the tests assigned to a particular year group be used. Furthermore, the method of scoring makes no allowance for marginal errors which are of impor-

tance in a case of this sort. Performance tests would probably serve as the most accurate means of judging the intelligence of the deaf-blind if restandardization of the time element could be effected.

3. While it may be impossible to obtain a quantitative score, a qualitative study of test results will indicate with some accuracy whether the individual in question is of good native intelligence, and will also give the approximate extent of his retardation.

4. It seems probable that the deafness of a deaf-blind individual is responsible for a greater share of his mental retardation than is his blindness. Serious dearth of vocabulary and awkwardness in use of language, which are found more commonly among deaf than among blind persons, would seem to bear out this fact.

5. If suitable methods be employed and no native mental defect coexists with the sensory deprivation, there is no reason why a deaf-blind individual is not educable. Undoubtedly, a late adventitious case, such as that described in the present study, is a simpler problem than cases of an earlier adventitious or congenital nature. Even these, however, should respond to intensive educational methods, although probably to a lesser extent.

THE MEASUREMENT OF SOCIAL AND POLITICAL ATTITUDES AND THE RELATED PERSONALITY FACTORS

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AN examination of such experiments as have been reported in the field of social and political measurement clearly reveals the possibility of a large number of experimental problems. The first and probably the most important is that of discovering just what are the more fundamental cleavages in opinions that will mark off distinctive opinion groups or personalities. Here we find great variability in the usage of terms. First, there are the popular terms of Reactionary, Conservative, Progressive, Liberal, and Radical. They are a mixture of political slogans and terms of reproach, but have come to represent certain vaguely defined attitudes or behavior sets. No serious attempt has ever been made to discover just what attitudes are commonly subsumed under these rubrics, yet most persons have these labels at hand and ready to attach to whatever cause or program may offer itself. At most, the experimenters have contented themselves with a simple separation into two groups such as Radical-Conservative or Liberal-Conservative. Some even have lumped several together, as, for example, contrasting the Radical-Liberal-Progressive attitude against the Conservative-Reactionary. In general, it has been assumed that the major separation follows somewhat this rough dichotomy, but no attempt had ever been made to identify the separate attitudes on the basis of a test.

Other than a use of varying combinations of the popular shibboleths, the only suggestion in regard to a possible significant characterization of opinions is the "typicality" and "atypicality" concept of the Allport-Hartman study. This showed sufficient promise to warrant a more extensive application of the method to more than just five scales to see if the same general results would appear when a much wider field of questions is surveyed.

Once rather sharply defined categories of opinions are discovered, the next problem available for solution on something approaching empirical data is the question of the personality differences of the individuals holding these positions. This is the

question that has stimulated so much of the literature on political opinions and personalities. While it is obviously true that such personality tests as we have leave considerable to be desired in the matter of reliability of tests, they represent none the less a considerable improvement over the armchair judgment so prevalent with the writers of popular magazine articles.

The one criticism in general that might be leveled with fairness against all studies on the subject is the small range of questions used as a basis for separating the different shades of political opinion. Most of the tests, too, were given in rather conservative groups of college students where a characteristic radical group was largely absent. Then, too, in most cases the number of subjects tested was smaller than is desirable, and a still more common weakness is a naïve acceptance of the experimenter's own criterion of what constitutes the varying shades of political opinion. Other than the Allport-Hartman "typicality" concept, there has been no attempt at a statistical definition or determination of opinion groups.

The whole field of measurement of attitudes and of the personality differences underlying them seemed worthy of more extensive investigation. The method of registering opinions on the varying scale seemed to recommend itself as the only one that would make possible the separation or classification of views and opinions into more than two categories. This seemed essential in view of the fact that varying shades of political and social opinion are continually referred to in common discourse. Also this is the only form in which the question of the significance of the typicality of opinion could be investigated.

Journals of political and social opinion were carefully watched over a period of several years, both for the live social issues of the day and for clean-cut expressions of representative views on these questions. About fifty questions were found upon which there are varying opinions current in the land. The limits of the patience and time of the subjects, the necessity of limiting the questions to those about which the average student could be expected to have some information and opinion, and the inadaptability of some of the questions to the scaled form, demanded the reduction of the total number of final scales to thirty-six. The limitations of the subjects' time, the difficulty of expanding all questions over too long a scale, and the demand for uniformity of scales for statistical purposes determined the number of scale steps at five.

In constructing the scale steps, the objective was to make each step complete and self-explanatory, independently of its juxtaposi-

tion to other scale steps or opinions. This was necessary in order that each step could later be given an independent rating of its political "complexion" when not in company with its fellow steps. Then, too, it was imperative to reduce the scales to a *single variable* and not allow more than one factor to enter and disturb the subject's choice. By stressing various aspects of any question, it is possible to bring out or construct numberless opinions relative to any one question. But to take one particular variable in regard to a given question and make the scale steps express simply different degrees of intensity or extremity on this one variable was the objective in the construction of these scales. When this is strictly adhered to, the number of possible opinions on most questions is decidedly reduced; in fact, it often makes it difficult to make five sharply distinct statements of as many degrees of intensity in a single variable. For example, random expressions of opinion on "The Church" would yield almost as many different statements as persons questioned. However, when confined to the single variable of its service to mankind, there are but few possible alternatives between the logical extremes sufficiently discrete to make clear-cut steps; to wit, (1) wholly evil; (2) doing more harm than good; (3) neutral; (4) doing considerably more good than harm; (5) wholly an influence for the good. Now, by introducing the subject of the clergy and their virtues and failings, one can increase the variety of opinions on the institutional aspects of religion, but is that, after all, what one wants? Only by restricting the scales to as nearly as possible the single variable can one truly say that the opinions expressed are actually on one single subject.

While much emphasis was put on this matter at the time of the construction of the scales, subsequent experience in giving and scoring the scales has so accentuated the importance of this matter that at the present writing the most serious self-criticism of the work would have to fall on the failure to adhere to this principle with sufficient singleness and ruthlessness. Care was taken, too, in eliminating all forms of special pleading or argument for a position. This was resorted to only in the cases where it was difficult to "stretch" the question or scale into five steps, in which case the steps were differentiated by varying the emotional emphasis in some or introducing minor variants.

The steps in each scale were then arranged in regular order of increasing or decreasing tendency toward the extreme positions, taking care in the final form to approximate an equal distribution of what would appear to be radical and reactionary positions in first place at the head of the scale. These scales were then care-

fully gone over by ten teachers of psychology, sociology, and economics, who indicated any instance in which the sequence did not seem to be sharply drawn, or where the progression was not clearly from one extreme of the position to the other. The final form was unanimously passed by several readers.

The scales were mimeographed, two scales to the page, and administered to the following groups of subjects:

710 students at Washington Square College, New York University;
204 students at University of Washington, Seattle, Washington;
120 students at Syracuse University;
30 students at Dartmouth College.

In addition to the questionnaire, all subjects took a slightly modified form of the Woodworth P.D. sheet. At Washington Square the subjects were also given the following tests:

Otis Advanced Examination, Form A;
Part III of the Thorndike Intelligence Examination for High School Graduates;
The Allport A-S test;
The Laird C_2 test;
The Kent-Rosanoff 100-Word Association Test, given as a group test;
Most of the subjects were also given a test of their suggestibility in the matter of vividness of reported imagery.. (See Cason, H., JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. 20, p. 294.)

At Washington, the subjects had been tested on a standard intelligence test and in addition were given the Allport A-S test and the Laird C2. Likewise, the Dartmouth subjects took these same tests, as did about one-third of the Syracuse subjects. The political questions were supplemented with a sheet calling for other social and familial data, such as family income, order of birth in the family, religious affiliations and origins, paternal occupation, political party preference, amount and motivation of church attendance, etc.

Following are the scales in the final form as administered to all the subjects. Note the instructions to the subjects in taking the test: "In each of the sets of five opinions below, draw a circle around the number of the opinion with which you are most in sympathy, whether or not it expresses your exact views." The parenthesized classifications (Reactionary, Conservative, Liberal, Radical, Neutral) at the side of each statement or scale step did not appear on the forms. They were determined by a rating method to be described later.

....
Last Name First Name Sex Year in College

All Information Given or Opinions Expressed in this Questionnaire Will Be Held Strictly Confidential. Please Be Entirely Frank.

Approximate income (annual) of family $.....
Number of persons supported by this income .....
Your average annual earnings from labor .....
Order of birth in family (*i.e.*, 1st, 2d, last) .....

Political party program generally favored by (*i.e.*, Republican, Socialist, etc.) { Father ..... / Mother ..... / Self ..... }

Mother's occupation ..... Father's occupation .....

Regardless of present religious beliefs, my parental stock is:

Mother { ..... Catholic ..... / ..... Protestant ..... / ..... Jewish ..... } Father

		Mother	Father	Self
Amount of Attendance	Regularly	.....	.....	.....
	Occasionally	.....	.....	.....
	Hardly ever	.....	.....	.....
Reason for Attending	Worship only	.....	.....	.....
	Worship and social	.....	.....	.....
	Social only	.....	.....	.....

Do not write below this line.

.....

..... S.P.....
1. 2. 3. 4. 5.
.... A–S.....
6. 7. 8. 9. 10.
.... P.D.....
11. 12. 13. 14. 15.
.... P.D.*.....
16. 17. 18. 19. 20.
.... P.D.**.....
21. 22. 23. 24. 25.
.... Wor.....
26. 27. 28. 29. 30.
....
31. 32. 33. 34. 35. 36.
.....

IN EACH OF THE SETS OF FIVE OPINIONS BELOW DRAW A CIRCLE AROUND THE NUMBER OF THE OPINION WITH WHICH YOU ARE MOST IN SYMPATHY WHETHER OR NOT IT EXPRESSES YOUR EXACT VIEWS.

(1) *Government Ownership.*

(*Rea.*) 1. Governments should be prevented, as far as possible, from acquiring ownership or control of any lands, properties, industries or corporations.

(*Con.*) 2. Only such enterprises as cannot be made to yield a profit under private ownership and are necessary to the nation, should be under government ownership or control, such as young forests, parks, canals or the mails.

(*Lib.*) 3. Governments should be allowed to compete freely with private industries in the field of public untilities; such as water supplies, gas, electricity and transportation systems.

LIB - M
CON - 6
RAD - 5
NEUT - 2
REAC - 1

4. Governments should own and control all raw materials; and public utilities
(*Lib.*) and such industries as in the nature of things tend to become monopolies.

5. Governments should own, operate and control practically the entire economic
(*Rad.*) resources of the nation.

(2) *The Confiscation of Wealth.*

1. Wealth or property should be confiscated by governments without compensa-
(*Rad.*) tion to the owners whenever it appears that such seizure will better serve the needs of a larger number of people.

2. Governments should be permitted to requisition private property with re-
(*Lib.*) muneration at any time, and without remuneration during times of great national stress or need.

3. Governments should be permitted to seize private property for public need
(*Lib.*) at any time, the compensation to the owner to be decided by a disinterested body of appraisers who are to determine the actual market value of the property in question.

4. Only in times of national stress shall the rights of private property be
(*Con.*) violated and then only with compensation at fairly appraised value in which the claims of the owner are given careful consideration.

5. Money or property must be held inviolate and immune to seizure by govern-
(*Rea.*) ments without compensation in full at the owner's terms and conditions, even in times of war, famine or national stress.

(3) *Protective Tariff.*

1. Except for commodities highly necessary to existence and which we cannot
(*Con.*) produce in our own territories, we should maintain high tariff barriers against foreign commodities.

2. There should be a reasonable tariff on most importations to discourage un-
(*Con.*) necessary transportation and to encourage home manufacture and to help even up the effects of the lower standards of living of foreign workers.

3. We should have on most importations but a low tariff, and then only until
(*Lib.*) our own industries making those articles have had a few years in which to become established.

4. There should be no import duties on any articles excepting such foreign
(*Lib.*) made things as are classed as luxuries and similar to those which we ourselves produce. Such duties should only be collected as a convenient source of revenue, which will be paid by those who can well afford it.

5. There should be a complete elimination of all import tariff barriers, allowing
(*Rad.*) commodities to flow freely into their natural markets.

(4) *Hereditary Wealth.*

1. All wealth should revert to the state at the death of the person owning or
(*Rad.*) accumulating it.

2. Inheritance taxes should confiscate the large bulk of all private fortunes,
(*Rad.*) leaving only enough to provide for the support of remaining dependent women and children.

3. Inheritances of over $25,000 for any one person should be taxed on a sliding
(*Lib.*) scale, increasing rapidly and proportionally with the size of the inheritance until very large inheritances are taxed about 50 per cent.

4. Excessively large family fortunes should pay a reasonable inheritance tax
(*Con.*) but not so high as to become confiscatory.

5. Individual thrift and initiative must not be dampened by any limitation or
(*Rea.*) taxation of hereditary wealth.

(5) *The Subway Fare.*

1. The subway companies should have the right to collect any fare they see
(*Rea.*) fit to impose.

2. The subway companies are entitled to collect a fare sufficient to enable them
(*Con.*) to pay a fair dividend on the par value of their stock as issued.

3. The subway companies are entitled to collect a fare sufficient to enable them
(*Lib.*) to pay only a fair interest on the actual cash capital they have invested.

4. If the subways are unable to operate on the fare at which they contracted, (*Lib.*) the city should have the right to buy out the companies, paying them a fair price for their equipment and business.

5. The city should repossess the subways and confiscate the equipment in the (*Lib.*) case of failure of the company to provide continuous and satisfactory service at the contracted fare.

(6) *Social Limitations in Mating.*

1. We should remove all restrictions and permit complete freedom in sexual (*Rad.*) relations.

2. We should permit temporary but monogamous matings without formal (*Rad.*) marriage.

3. Rather more permanent monogamous matings should be permitted without (*Lib.*) formal marriage.

4. We should observe and teach complete chastity in sex outside of wed- (*Con.*) lock.

5. We should observe and teach complete chastity except for procreation and in (*Rea.*) marriage only.

(7) *The Question of Birth Control.*

1. Physicians should be permitted to supply information and materials for birth (*Con.*) control only in the cases of married women whose lives would be in actual jeopardy by pregnancy. Other spreading of information and materials to be strictly forbidden.

2. The general dissemination of information and materials for birth control (*Con.*) should be forbidden but it should be made available to families of paupers and defectives.

3. The government should adopt an attitude of complete *laisses faire* and re- (*Lib.*) move all present restrictions or laws in regard to contraceptive information.

4. The government should see to it that all married persons are supplied with (*Lib.*) information and materials for birth control as part of the process of legal marriage.

5. Government educational machinery should supply both information and ma- (*Lib.*) terials for birth control to all persons of both sexes, married or single.

(8) *The Legality of Abortions (''Criminal Operations'').*

1. A woman should be master of her own body and have the unquestioned right (*Rad.*) to decide at any stage of the pregnancy whether she wants to continue with it or not. It is merely a question of her own prudence in the matter of surgical hazard.

2. Abortions in the early stages of pregnancy should be made legal for all (*Rad.*) women, sick or well, married or unmarried.

3. Abortions in the early stages of pregnancy should be legalized in the cases (*Lib.*) of married women even if in good health, if they have as many children as they can support.

4. Abortions should be permitted only in cases where physicians agree that a (*Con.*) continuance of pregnancy would mean almost certain death or permanent invalidism to the woman.

5. Abortion at any time is murder and as such must be outlawed and severely (*Rea.*) punished.

(9) *The Question of Divorce.*

1. Divorces should be granted only in the case of the most flagrant injuries of (*Rea.*) one party by the other, as in extreme cruelty, jeopardy of life or persistent adultery.

2. Divorces should be granted for any considerable breach of the marriage (*Con.*) contract, such as desertion, non-support or complete failure to cooperate in the life of the family.

3. Divorces should be granted at the requests of both parties for any reason

(*Lib.*) whatever; the court limiting its function to that of mediator, attempting to adjust the differences without a divorce and to guard the interests of the children.

(*Lib.*) 4. Divorces should be granted at the request of either one of the parties to the marriage contract. The court should act only as mediator to attempt a reconciliation and to introduce a reasonable period of delay and safeguard the interests of the children.

(*Rad.*) 5. Individuals should be allowed to divorce themselves at their own free will. The governmental function should be reduced to a simple machinery of vital statistics, compelling the registration of births and holding the parents jointly responsible for the children.

(10) *Attitude Toward Incest.*

(*Rad.*) 1. We should remove all taboo and laws regarding the mating of blood relations in marriage.

(*Lib.*) 2. Blood relatives, more remote than brother-sister or child-parent relationship should be allowed to marry.

(*Lib.*) 3. Blood relatives more remote than first cousins or the uncle-niece or aunt-nephew relationship should be allowed to marry.

(*Con.*) 4. Blood relations more remote than second cousins should be allowed to marry.

(*Rea.*) 5. We should forbid and punish severely all marriages between blood relations or between in-laws or between foster brothers and sisters.

(11) *Attitude Toward Attempts at Social Progress.*

(*Rea.*) 1. We should not attempt to interfere with the processes of society. We only succeed in making things worse by our meddling.

(*Rea.*) 2. It is both useless and foolish to attempt to improve society; even if we can do no harm trying we can certainly gain nothing for our pains but the ill-feeling of some of our fellows.

(*Neu.*) 3. Probably neither harm nor good can come out of trying to improve society. However, if anyone enjoys trying, we should be content to let him.

(*Lib.*) 4. We can and should improve society by careful, scientific attempts. At least we can learn much about its processes in our trials.

(*Lib.*) 5. There is no limit to the improvement we can make in society by deliberately and scientifically attacking the problem.

(12) *The Prohibition Question.*

(*Lib.*) 1. No government should be permitted to interfere with individual freedom to the extent of dictating the beverages one may manufacture or consume.

(*Lib.*) 2. We should repeal the 18th Amendment and permit local governments to license and regulate or abolish the sale of liquor as they see fit.

(*Lib.*) 3. Our liquor laws should be modified to permit the sale of alcoholic beverages in government liquor houses, similar to the Quebec system.

(*Con.*) 4. Our liquor laws at present are not wholly successful but they should be upheld and more uniformly enforced, for they will be successful after a generation of education and enforcement.

(*Con.*) 5. The present constitutional amendment prohibiting alcoholic liquors and the laws interpreting this amendment are both satisfactory. Enforcement should be made more severe.

(13) *Academic Freedom.*

(*Rea.*) 1. The holding of very unconventional views on any subject is sufficient ground for dismissing any instructor from his position in a university.

(*Rea.*) 2. Any university instructor holding very unconventional views on any subject should be warned to keep the views to himself under penalty of dismissal.

(*Con.*) 3. University instructors holding very unconventional views should be permitted to discuss them with graduate students and fellow teachers only.

4. University instructors holding very unconventional views should be permitted

(*Con.*) to discuss them in their Junior and Senior classes but not with underclass groups.

(*Lib.*) 5. University instructors should have the greatest possible freedom in discussing their opinions with their students or anyone else, even if the opinions are of a very unconventional nature.

(14) *Freedom of Speech.*

(*Rea.*) 1. The desirability of freedom of speech is a myth and an illusion. Every government must at all times keep in touch with indiscriminate utterances, and, as the need arises, apply strict censure.

(*Con.*) 2. A government should have the power to so control the destructive criticism of minorities that it shall not be handicapped in carrying out its programs.

(*Con.*) 3. The government should restrict private as well as public utterances provided they are of a highly inflammatory and dangerous nature and occur during a public crisis.

(*Con.*) 4. Only in times of wars or great national crises should governments be permitted to restrict complete freedom of expression, and then only in the case of public speeches or writings.

(*Rad.*) 5. No government should be allowed at any time in any way to abridge or restrict the most complete freedom of expression of opinion on any subject whatever in public or in private.

(15) *Conscription for Military Service.*

(*Con.*) 1. The state should have the right to conscript any of her citizens for military service during wartime; and for a limited time, sufficient to train the citizen into an effective soldier, in time of peace.

(*Con.*) 2. The state should have the right to conscript men for military services in wartime only.

(*Lib.*) 3. The state should have the right to conscript men for military service in defensive wars only, and in the event of an actual invasion of her territories or that of her colonies.

(*Lib.*) 4. The state should have the right to conscript men for military purposes only in the case of an actual invasion of the soil of the homeland by enemy forces, and then only when the war has been approved by popular referendum.

(*Rad.*) 5. No state should be permitted the right to conscript men for any military service whatever.

(16) *Gambling.*

(*Rad.*) 1. All gambling, including speculative buying, selling and holding of actual commodities should be outlawed as non-productive and wasteful.

(*Neu.*) 2. All gambling, including speculative buyings and sellings in which no actual commodities change hand should be forbidden.

(*Con.*) 3. Gambling with mechanical devices and wagers on mere problematical events such as cock fights or horse races should be forbidden as public business enterprises.

(*Neu.*) 4. Only gambling with mechanical devices and obviously fraudulent enterprises should be forbidden by law.

(*Neu.*) 5. Governments should adopt an attitude of complete indifference toward all forms of gambling or speculation.

(17) *The Socialization of Medical Care.*

(*Rea.*) 1. The government should refrain from all kinds of socialized medical care or regulation.

(*Con.*) 2. State medical activity should be limited strictly to the enforcement of sanitary and quarantine regulations and the examination and licensing of medical men.

(*Neu.*) 3. State medical care should be available for people unable to secure the services of a private physician. The average patient, however, should be served privately by a doctor of his own choosing.

(*Lib.*) 4. Modern medical practice demands such a large amount of specialized equipment that it can be acquired only by large organizations. These should be available to all, which will necessitate an increasing socialization of medicine.

(*Rad.*) 5. All diagnostic and curative medical and dental work of all kinds should be purely a state function.

(18) *Minimum Wage Laws.*

(*Rea.*) 1. There should be no interference whatever with the laws of supply and demand in the determination of wages. The state should not fix or limit them.

(*Con.*) 2. No minimum wage laws should go further than to guarantee to heads of families a wage sufficient for the bare necessities of life.

(*Lib.*) 3. The only wage regulation desirable is a minimum wage, sufficient for a decent living and guaranteed to every person willing to work.

(*Rad.*) 4. Wages should be completely uniform except for especially skilled and talented persons who are so urgently needed that they must be given increased pay.

(*Rad.*) 5. Wages should be made uniform for all men and women, from president to charwoman.

(19) *Equality of Income.*

(*Rea.*) 1. No incomes, regardless of their size, should be subject to income taxes.

(*Con.*) 2. Only in very large incomes of over $100,000 a year should there be any inroads with income taxes.

(*New.*) 3. Income taxes should be graduated so that large incomes pay proportionally heavier taxes than small ones, but never taxing any income to the point of confiscation nor collecting any taxes from incomes of less than $5,000 a year.

(*Rad.*) 4. Incomes should be taxed on so heavy a scale that the greater portion of the larger incomes is confiscated, thus approaching the removal of the largest differences in income.

(*Rad.*) 5. We should have some system of taxes or regulations so as to produce entire equality of incomes or consuming power.

(20) *Compulsory Education.*

(*Lib.*) 1. The state should require and provide the money for unlimited education for every child up to the limit of his capacities and until he is prepared for and placed into a self-supporting vocation, compatible with his abilities and interests.

(*Lib.*) 2. Compulsory education should extend to four years of secondary or vocational school, adapted to the child's capacities.

(*New.*) 3. Parents should be compelled by law to keep children in school until the primary grades or their equivalent are completed, or until the child has shown definitely that it is for him an impossible task.

(*Rea.*) 4. Education compulsory by law should end with the simple teaching of the three R's to all those who appear to have the capacity for them.

(*Rea.*) 5. Whether a child should attend school at all should be purely a private matter between the parents and their children.

(21) *The Powers of the Supreme Court.*

(*Con.*) 1. The position and powers of the Supreme Court should remain as they are today in the matter of its ability to declare unconstitutional the acts of Congress.

(*Lib.*) 2. The powers of the Supreme Court should be curtailed so that in the cases of the five to four decision of the court, Congress should overrule the court's decision.

(*Lib.*) 3. The powers of the Supreme Court should be so curtailed that only when the judges are agreed at least seven to two should their decisions overrule or declare unconstitutional an act of Congress.

4. The powers of the Supreme Court should be so curtailed that only in the case (*Rad.*) of a unanimous decision should the court overrule Congress.

5. The Supreme Court should be denied entirely its present powers of passing (*Rad.*) on the constitutionality of the acts of Congress.

(22) *Religion and Science.*

1. Religions are but means of human enslavement. It is to science that man (*Rad.*) owes the little he can claim as progress above the brute. We must aid science as much as we can in its warfare against the superstition inherent in all religion.

2. Religion like magic, represents the pre-scientific era of human civilization. (*Lib.*) Although mainly superstition, it contained some grains of wisdom which we are now replacing with more exact scientific knowledge.

3. Neither science nor religion give us more than hypotheses but those of (*Lib.*) science are more practical. Hence it is science that offers the larger field for fruitful study and experiments.

4. Religions are the crystallized wisdom of years of practical experience. (*Con.*) Science should be very cautious about breaking down this structure before it has a tried and proven substitute.

5. Only in religion are our enduring truths and values to be found. Science is (*Rea.*) but a momentary craze which will prove to be futile in the end.

(23) *The American Constitution.*

1. The Constitution is a document of rare wisdom and merit. It is the amend- (*Rea.*) ments we attempt that cause our difficulties with it. We should make it harder to amend the Constitution.

2. The Constitution, its amendments and the present ease of amending it are (*Con.*) very satisfactory. All we need is strict enforcement of its articles and amendments.

3. We should make it still easier to amend the Constitution and should have no (*Lib.*) hesitancy about doing so with increasing frequency, provided only that we make it as easy to remove an amendment as to add one.

4. We should so freely amend the Constitution of the United States that it may (*Rad.*) practically lose its present identity within a few years.

5. The Constitution is an archaic scrap of paper which hinders us in our (*Rad.*) attempts to make a working adjustment with our changing economic and social conditions. It should be freely disregarded in passing legislation.

(24) *Respect for Tradition.*

1. The inertia of custom is so great that it is safe to say of any custom that (*Lib.*) it is probably obsolete and we should cast about for a better solution or adjustment of the problem.

2. All customs are prone to become outgrown. They should all be critically (*Lib.*) examined and ruthlessly discarded where it seems advisable.

3. Traditional ways of behaving are not to be respected particularly as such; (*Lib.*) they should be judged by their functional value only.

4. We may change our traditions when we find it absolutely necessary, but we (*Con.*) must always remember that they have back of them a long pedigree of selection and adaptation to man and are not to be carelessly thrown aside.

5. Our religious and moral traditions are our most precious heritage from the (*Rea.*) ages. They must be preserved in the letter and spirit of the past.

(25) *The Church.*

1. The Church is an institution of slavery and reaction, both in its past record (*Rad.*) and its present activity. It has fought every inch of scientific progress. It should be suppressed and destroyed.

2. While the Church may have had a day of usefulness to mankind, today it is (*Lib.*) too prone to be but another of the agencies subservient to other forces in society which use it merely as a device for the control of public opinion. What little constructive work it does might well be done by other agencies.

(*Rad.*) 3. Churches are relatively innocuous for either good or evil. They operate on a rather isolated segment of human behavior, hardly touching the main currents of our lives. We may well ignore them.

(*Con.*) 4. The Church is a substantial agency of progress in the service of mankind. While its functions necessarily change in part with each age it still is one of the largest of civilizing agencies doing excellent service in socializing the individual and making an orderly society possible.

(*Rea.*) 5. The Church has ever been the standard-bearer of civilization and the promoter of virtue. To it we owe our emergence from the darkness of savagery. We must maintain, support and extend the activities of the Church over a much larger segment of our lives. Only to it can we look for salvation.

(26) *The Powers of Labor Organizations.*

(*Rea.*) 1. Labor organizations are a menace to individual freedom, orderly government and industrial progress. They should be outlawed.

(*Con.*) 2. Organizations of workers with spokesmen appointed by the employers should be permitted, in the interests of harmony between employer and employees and to prevent the formation of radical labor unions.

(*Lib.*) 3. So long as we have combinations and organizations of capital and employers we must grant labor the same rights and powers of organization and collective bargainings. It is its only weapon.

(*Lib.*) 4. Through organizations of their own choosing, labor should be given a share in the management and profits of all industries.

(*Rad.*) 5. The solution of the problems of modern society demands the transfer of governing power and political franchise from the present system of geographical units to industrial and occupational groups of which labor organizations are the forerunners.

(27) *The Qualifications of Mr. Hoover.*

(*Con.*) 1. Mr. Hoover is probably the best man that could have been found in the United States for the office of President. He seems perfectly equipped for the office.

(*Con.*) 2. Mr. Hoover is a better man than any of those nominated by the other parties, but is not of the quality of some of our greatest Presidents.

(*Neu.*) 3. Mr. Hoover is about average in quality as compared to our other Presidents, and is probably not superior in any significant way to some of his defeated rivals.

(*Lib.*) 4. As President, Mr. Hoover is inferior to some of his defeated rivals. The American voters would have done better with one of the other candidates.

(*Rad.*) 5. Mr. Hoover is a most unfortunate choice for the Presidency. His administration is bound to increase the evils already rampant in American life.

(28) *The Recognition of Russia.*

(*Lib.*) 1. We should recognize Russia and give her our wholehearted support and encouragement as a new experiment in government and social relations.

(*Lib.*) 2. We should extend full recognition toward the present Russian government, the same as we have toward Italy or to any of the European dictatorships, without either approving or condemning their policies.

(*Con.*) 3. We should assume an attitude of "watchful waiting" and after sufficient time and study we should decide whether we wish to give Russia recognition, dealing with her meanwhile on a strictly cash basis.

(*Rea.*) 4. We should maintain a "Cordon Sanitaire" or blockade of Russia, treating her as an outlaw but refraining from overt military intervention.

(*Rea.*) 5. The present Russian government is a menace to all established order. All nations should unite to overthrow the Bolsheviki.

(29) *Naval Armament.*

(*Rea.*) 1. The United States should have so large a navy that even as unusual alliance of enemies would find us impregnable, and so that we could protect American interests at home or abroad.

(*Con.*) 2. The United States should have a navy only in proportion to its size and on the scale that other countries are armed. Any navy in excess of this is in itself a threat of war and thus defeats its own purpose.

(*Lib.*) 3. As a powerful nation, relatively isolated from rival powers, and as leaders in democratic movements, we can well afford to set other nations an example by maintaining only a small navy, much less in proportion than our rival powers.

(*Rad.*) 4. The United States should have only such fighting ships as are necessary to put down any pirates that may appear in the absence of any organization to combat them, but making no pretence of a national naval machine.

(*Rad.*) 5. All navies are enemies of liberty, breeders of wars and prone to be used by minorities to coerce free citizens. They should all be destroyed.

(30) *The Fascist Government.*

(*Rea.*) 1. Fascism is a menace. Civilized governments should unite and put it down and restore orderly democratic government in Italy before Fascism spreads to other countries.

(*Neu.*) 2. The Fascist government is a tyrannous dictatorship. We should sever all relations with it just as we have done in the case of the Russian Bolsheviki.

(*Neu.*) 3. The Fascisti probably reveal nothing new in governmental tactics or policies. The form of government in any other country is none of our business. We should deal carefully with the Fascisti, however, as we do with any other upstart government.

(*Neu.*) 4. While some of the Fascist methods are deplorable, yet their policies of organization and construction have been the means of the social and industrial regeneration of Italy and have saved her from revolution and Bolshevism.

(*Rad.*) 5. The Fascisti strike a new note of realism in government. We should adopt a similar departure in solving our own problems of industrial unrest and national destiny.

(31) *Miscegnation—The Interbreeding of Races.*

(*Rea.*) 1. Every possible legal effort should be made to prevent the intermarriage or interbreeding of races.

(*Rea.*) 2. We should discourage the interbreeding of races by socially ostracising those individuals who marry into a race other than their own.

(*Neu.*) 3. It is both foolish and futile to attempt to interfere in the matter of racial intermixture by legal or social means.

(*Lib.*) 4. While not deliberately encouraging the intermarriage of races, yet we should be particularly careful not to discriminate against or to socially ostracise those individuals of our own race who marry into another.

(*Rad.*) 5. We should do our best to favor and facilitate the biological intermixture of races.

(32) *Our Latin-American Policy.*

(*Lib.*) 1. We should get out of the Central American countries at once, offering apologies and compensations for the insults and damages they have suffered at our hands.

(*Lib.*) 2. We should withdraw our troops from the Central American countries as quickly and as gracefully as we can and let them manage their own affairs in the future.

(*Con.*) 3. We should keep control in the Central American Republics only long enough to establish order and hold peaceful democratic elections.

(*Con.*) 4. Our financial and military policies in Central American may both have been unwise. However, since we are already involved there, and cannot now retrench without serious losses in both money and prestige, we should continue our present policy.

(*Rea.*) 5. The United States should have no scruples about dictating policies to the Central American countries. We cannot temporize with comic-opera governments that make stable business relations impossible.

(33) *Immigration.*

(*Rea.*) 1. We had better preserve our lands and heritage for our own offspring by shutting out all immigrants.

(*Con.*) 2. Immigrants should be strictly limited to small numbers of the white race and of cultures similar to our own, and then only those of a certain high standard of culture or intelligence.

(*Con.*) 3. Immigration should be limited to small and definite racial or national quotas based on the number of that group already here and thoroughly assimilated. The individuals admitted should be of a fair standard of physical and mental excellence.

(*Lib.*) 4. We should admit as many immigrants of all races as it is possible to absorb without severe social disorganization, excluding only criminals and persons of low grade mentality.

(*Lib.*) 5. We should admit all immigrants of any race excepting only defectives more than likely to become public charges or criminals whose crimes are other than purely political in nature.

(34) *International Alliances.*

(*Rad.*) 1. We should work for the abolition of the unlimited sovereignty of each of the separate nations or states and build up an international or world federation.

(*Lib.*) 2. We should be ready to join with full responsibility any organization or league of all nations having for its object the peace and well-being of all people.

(*Con.*) 3. We should join with caution such international bodies as the World Court or the League of Nations, reserving the full right to withdraw from them in the event that we find ourselves unjustly treated or our sovereignty endangered.

(*Con.*) 4. We should make no alliance, secret or otherwise, with any foreign powers, but we should stand ready to aid in any commendable or necessary enterprises involving the cooperative effort of one or more countries.

(*Rea.*) 5. We must in no wise jeopardize our national sovereignty by any alliances, entanglements or cooperative enterprises with any foreign powers.

(35) *White Supremacy.*

(*Rea.*) 1. The white race should continue its past and present program of subjugating and exploiting the darker or inferior races of the earth.

(*Rea.*) 2. Modern civilization is almost entirely a product of the white race. With this evidence of superiority we are justified in doing our best to maintain the white race in its position of unquestioned supremacy.

(*Lib.*) 3. All the races are of very nearly equal worth, each making its own peculiar contributions to civilization. No race should assume itself to be the elect.

(*Rad.*) 4. The white race today is merely a dog having its day, as history shows other races to have had. It might well be some other race's turn next. Certainly the white race has done nothing on which to base claims of permanent leadership.

(*Rad.*) 5. The ruthlessness and barbarism the white race has persistently shown in its relations with other races justifies the other races in combining to exterminate the common enemy the whites or beat them into submission.

(36) *The Nordic Race.*

(*Rad.*) 1. The Nordics have never been more than rather successful and acquisitive pirates, plunderers, and traders.

(*Neu.*) 2. The Nordics have contributed relatively less to progress and civilization than some other races.

(*Neu.*) 3. The peoples loosely referred to as the Nordics have been neither more nor less inventive or progressive than other races.

(*Neu.*) 4. The Nordic race has contributed a relatively large share to progress and civilization.

(*Rea.*) 5. The Nordic race has been the source of all fundamental progress and civilization.

The following table gives for each step of each of the thirty-six scales the Reactionary-Radical scale rating and the typicality values calculated separately for New York University, Syracuse, and the University of Washington groups:

Scale	Step	React.-Rad. Rating	Typicality Values		
			N. Y. U.	Syracuse	U. of W.
1	1	RE.	05	01	02
	2	C	47	48	51
	3	L	11	20	19
	4	L	29	26	24
	5	R	09	05	05
2	1	R	04	03	03
	2	L	08	05	07
	3	L	31	29	23
	4	C	54	60	65
	5	RE	04	02	02
3	1	C	12	12	13
	2	C	40	51	56
	3	L	15	13	14
	4	L	19	13	11
	5	R	15	11	06
4	1	R	02	01	00
	2	R	04	02	06
	3	L	25	25	22
	4	C	50	55	63
	5	RE	20	17	08
5	1	RE	01	03	01
	2	C	26	36	35
	3	L	16	24	17
	4	L	43	29	33
	5	L	15	07	14
6	1	R	09	03	04
	2	R	14	09	12
	3	L	22	23	18
	4	C	39	56	53
	5	RE	16	19	13
7	1	C	10	08	10
	2	C	09	12	10
	3	L	09	11	10
	4	L	26	35	30
	5	L	47	33	40
8	1	R	24	15	19
	2	R	12	09	18
	3	L	17	20	18
	4	C	41	49	37
	5	RE	05	07	08
9	1	RE	08	09	10
	2	C	29	51	45
	3	L	31	20	24
	4	L	20	15	15
	5	R	13	05	06

Scale	Step	React.-Rad. Rating	Typicality Values		
			N. Y. U.	Syracuse	U. of W.
10	1	R	10	03	02
	2	L	15	12	04
	3	L	27	22	21
	4	C	41	49	49
	5	RE	08	15	24
11	1	RE	03	00	01
	2	RE	02	01	02
	3	N	10	08	11
	4	L	53	64	57
	5	L	33	28	28
12	1	L	23	05	05
	2	L	21	11	06
	3	L	34	35	49
	4	C	17	42	31
	5	C	05	07	09
13	1	RE	00	01	00
	2	RE	03	03	04
	3	C	08	11	15
	4	C	20	23	25
	5	L	70	63	56
14	1	RE	05	03	05
	2	C	04	06	06
	3	C	16	26	29
	4	C	50	49	43
	5	R	24	15	17
15	1	C	12	15	27
	2	C	34	41	43
	3	L	18	21	16
	4	L	23	16	09
	5	R	14	07	05
16	1	R	09	07	09
	2	N	10	11	07
	3	C	12	19	20
	4	N	59	58	58
	5	N	10	05	05
17	1	RE	01	01	00
	2	C	09	05	07
	3	N	60	63	72
	4	L	25	29	18
	5	R	06	03	03
18	1	RE	10	07	09
	2	C	08	07	07
	3	L	71	80	74
	4	R	09	05	07
	5	R	02	01	03
19	1	RE	02	02	01
	2	C	09	09	08
	3	N	79	85	83
	4	R	04	03	04
	5	R	06	02	03
20	1	L	38	24	26
	2	L	30	39	49
	3	N	28	35	23
	4	RE	01	01	01
	5	RE	03	01	01

Scale	Step	React.-Rad. Rating	Typicality Values		
			N. Y. U.	Syracuse	U. of W.
21	1	C	52	57	60
	2	L	18	13	11
	3	L	20	23	17
	4	R	07	05	10
	5	R	04	02	02
22	1	R	13	05	08
	2	L	34	23	20
	3	L	36	30	35
	4	C	15	40	35
	5	RE	02	02	01
23	1	RE	08	12	15
	2	C	38	53	53
	3	L	46	26	25
	4	R	03	06	02
	5	R	06	04	04
24	2	L	02	03	01
	2	L	33	28	30
	3	L	35	42	30
	4	C	27	26	36
	5	RE	03	02	02
25	1	R	03	02	01
	2	L	27	09	18
	3	R	14	09	09
	4	C	51	74	60
	5	RE	05	07	12
26	1	RE	01	01	01
	2	C	29	28	35
	3	L	49	48	47
	4	L	17	18	14
	5	R	05	05	03
27	1	C	08	23	29
	2	C	28	41	32
	3	N	46	29	31
	4	L	15	07	06
	5	R	03	01	02
28	1	L	18	11	14
	2	L	44	45	36
	3	C	35	41	46
	4	RE	01	01	02
	5	RE	02	01	02
29	1	RE	07	04	07
	2	C	63	66	74
	3	L	16	20	10
	4	R	08	07	06
	5	R	06	03	02
30	1	RE	05	04	07
	2	N	04	01	05
	3	N	39	35	37
	4	N	51	59	51
	5	R	01	01	00
31	1	RE	14	13	33
	2	RE	10	07	17
	3	N	32	33	21
	4	L	41	45	29
	5	R	04	01	01

Scale	Step	React.-Rad. Rating	Typicality Values N. Y. U.	Syracuse	U. of W.
32	1	L	07	07	05
	2	L	31	20	22
	3	C	46	51	54
	4	C	13	19	14
	5	RE	04	03	05
33	1	RE	02	02	03
	2	C	12	19	27
	3	C	**54**	**64**	**57**
	4	L	28	14	12
	5	N	05	02	01
34	1	R	14	10	11
	2	L	31	35	29
	3	C	26	34	32
	4	C	23	19	20
	5	RE	07	02	08
35	1	RE	02	02	06
	2	RE	24	17	29
	3	L	65	68	56
	4	R	08	10	08
	5	R	01	03	01
36	1	R	03	00	01
	2	N	12	17	14
	3	N	52	37	40
	4	N	32	45	44
	5	RE	01	02	01

The typicality values are here simply expressed in terms of the per cent value of each, which is the same as the probable number of choices for each step out of a hundred questionnaires.

It will be noticed that many of the scales do not include all the four categories of the Reactionary-Radical scale, nor do the extremes invariably appear. On some scales the logical extremes include neither Reactionary nor Radical. The modes do not necessarily fall in the middle positions. In several of the scales the modal position is one of the extremes, with the other steps chosen in decreasing frequency as they become removed from the modal position. Most of the scales, however, have the greatest frequency of choices in one of the intermediate positions. A few are bi-modal.

Findings

The first problem that seemed available for inquiry was that of the nature of the factor of "typicality" of opinions or choices. A previous piece of research[1] had seemed to indicate that the factor of the typicality of the opinions chosen was a more fundamental diagnostic and indicative measure of fundamental differences in attitude on the part of the subjects than the ordinary designations of "radical", "liberal", etc. To this end a special attempt was made to note the constancy of this value within a given group, the

[1] Allport-Hartman Study (*op. cit.*).

group chosen being the 710 subjects tested at Washington Square College. The typicality value of each step was calculated on the first 144 cases that came in, this value being expressed for convenience in terms of the percentage of the choices found to occur in each step. When these values were later compared with the corresponding values calculated on 706 cases, the two sets of values correlated plus .98. This indicates that the actual number of times a given opinion will be chosen in a given group can be predicted with almost uncanny accuracy from as small a sample as 150 cases. Expressed in different terms, the average deviation per step of the typicality value calculated on 144 cases is only 2 per cent when compared with the values found on 706 cases. The range of deviations, however, is from zero to 9 per cent over the whole 180 steps. Comparing the typicality values as calculated on 560 cases against those of the final group, it was found that the change per step averaged only one-half of 1 per cent, with 2 per cent the maximum variation on any one step.

Typicality as a Constant Factor in the Opinions of a Given Individual.

To test the value of the typicality measure for predicting further opinions other than those already expressed by an individual the following procedure was adopted:

a. The thirty-six sets of opinion scales were divided into two sets of eighteen each, care being taken that each set contained its due share of scales on each general topic, such as "economic", "political", "individual liberty", "sex and family", etc.
b. Three hundred and eleven administered questionnaires, selected at random, were then scored separately in two groups, of eighteen scales each and the typicality index of each found separately.
c. These paired values were then correlated by the product-moment method, giving plus .477 (P.E., .009).
d. One hundred and forty-eight subjects were given the scales for a second test about a month later. These were again scored for the typicality value and correlated against the average typicality value of their first test as based on all 36 of the scales. Result, plus .74 (P.E., .025).

The Typicality Measure as a Means of Comparing Groups

An attempt was made to use the typicality values as a means of comparing groups from different geographical regions, namely, metropolitan New York and up-state New York, with students at Washington Square College and at Syracuse as the groups to be

compared. To the Syracuse group were added about 29 subjects from Dartmouth to get a larger group for purposes of comparison. While in some steps the two groups differed by as much as 25 per cent in the actual percentage of the groups that chose a particular step, the average difference per step was only 5 per cent, or about twice the difference found between the typicality values in comparing 144 cases with 706 cases of a relatively homogeneous group. To express these differences in terms of a correlation, it can be said that even if in the case of eight or ten of the steps the two groups differed by as much as 20 per cent of the group in the number of choices on a given step, the paired typicality values for the two groups still give a product-moment correlation of plus .926 (P.E., .007). This would seem to indicate that the similarities in the opinions between the two groups far overshadow the differences, for mere chance agreement on the steps would give a correlation approaching zero.

It would seem that it would require some other means of differentiating and classifying opinions to do more adequate justice to the differences in opinion between groups, for in further examining the reliability of differences in typicality by taking a random 237 cases it was found that they gave an average difference per step of 3.3 per cent compared to the values found on 144 cases. It is to be remembered that equal groups from the two schools give but 4.9 per cent average difference per step. Thus the differences obtained in comparing two groups of different social composition and geographical position are but little greater than those one would obtain in comparing two samples of the same size taken in the same group, where the composition could be expected to be homogeneous.

Another phase of the work with political and social opinions was the problem of identifying the separate scale steps under the names in common usage for varying shades of opinion. In order to do this, as was previously indicated, the separate steps were so composed that they would be self-explanatory units. On other forms these 180 separate steps were arranged in a random order, and just to the right of each statement were indicated the following descriptive labels:

Reactionary
Conservative
Neutral
Liberal
Radical,

with instructions to "Read each statement by itself and express your judgment of its political classification by drawing a line

through the word most nearly describing or classifying it." The "Neutral" category was added so that no one of the other groups should become the repository of the equivocal or uncertain judgments. This rating was carried out by 84 subjects, after which the ratings for each step were totaled and the modal rating was used as the descriptive label to assign to the step. There was on the whole a surprising agreement on a large percentage of the steps. The modal ratings obtained will be found in parentheses just to the left of each scale step in the copy of the scales already given. It may be noted in regard to these ratings that in no case did they produce an absurdity in the sequence of the scale steps. Always the five steps reappeared, when reassembled in their own group, in the order of increasing or decreasing "radicalism", although they appeared in random order on the rating sheets.

By means of these modal ratings the separate choices of each subject were labeled according to the five categories, and the total number of each class of choices registered by each subject was determined. To test the value of these categories in predicting the choices of an individual, the same procedure was followed as in the case of the typicality value. The ratings had determined the status of the 180 total steps as follows:

Reactionary	34
Conservative	41
Neutral	15
Liberal	53
Radical	37
Total	180

Inasmuch as only 36 steps are chosen by each subject, the maximum possible number of choices of each kind are:

Reactionary	28
Conservative	30
Neutral	9
Liberal	31
Radical	26

The irregularity of the numbers of possible choices is due, of course, to the fact that not all the scales contained a step of each of the five kinds. In other words, the logical extremes of some questions apparently do not run the full gamut from Reactionary to Radical. The Neutral category, too, was but a device to prevent any of the other groups from being the recipient of the vague or indefinite steps.

Following are the actual frequencies of the occurrence of each of the categories in the opinions of the subjects:

Reactionary Frequency

Number of Reactionary Choices	Frequency of Occurrence
0	168
1	199
2	140
3	84
4	47
5	28
6	20
7	10
8	5
9	3
10	1
13	1

Conservative Frequency

Number of Conservative Choices	Frequency of Occurrence
0	7
1	18
2	16
3	9
4	31
5	24
6	20
7	38
8	37
9	40
10	47
11	59
12	55
13	60
14	56
15	51
16	42
17	34
18	32
19	18
20	8
21	3
22	1
	706

Neutral Frequency

No. of Neutral Choices	Frequency
1	3
2	21
3	42
4	115
5	235
6	174
7	92
8	19
9	4

Liberal Frequency

No. of Liberal Choices	Frequency
3	1
4	0
5	4
6	4
7	10
8	14
9	33
10	39
11	62
12	56
13	64
14	64
15	61
16	57
17	51
18	35
19	44
20	46
21	21
22	19
23	7
24	2
25	6
26	1
29	2

Radical Frequency

No. of Radical Choices	Frequency
0	111
1	173
2	140
3	84
4	48
5	43
6	25
7	16
8	16
9	14
10	6
11	8
12	5
13	4
14	4
15	2
16	3
17	0
18	1
19	0
20	1

It will be observed that the actual frequency of occurrence of each category of political opinion is necessarily small inasmuch as each subject was limited to 36 choices in the 36 scales. Particularly is this true in the case of the reactionary and radical tables, where the median for the former is about *one* reactionary step, and in the latter where the median is about *two*. This makes it very hard to get a good correlation, particularly when these values are halved in correlating the number of radical or reactionary choices in the first 18 of the scales against the respective number in the last 18. However, the following correlations were obtained by the product-moment method, correlating the frequency of each category in the two halves of the 36 scales (311 cases):

Category	Correlations (plus)	P. E. r.
Reactionary-Reactionary	.40	.033
Conservative-Conservative	.63	.023
Neutral-Neutral	.144	.037
Liberal-Liberal	.53	.027
Radical-Radical	.61	.024

One hundred and forty-seven cases were given a retest about a month after the first test and the frequency of their choices of each of the categories was correlated with the corresponding values of the first test, with the following results (product-moment):

Retest

Category	Correlations (plus)	P. E. r.
Reactionary-Reactionary	.63	.034
Conservative-Conservative	.88	.013
Liberal-Liberal	.82	.018
Radical-Radical	.91	.009

These correlations would seem to indicate that such attitudes or "sets" as exist to determine the Radical-Reactionary scale of choices are rather specific and constant, in the individual. Thus, while the actual typicality values of the test and the retest correlate plus .74, this correlation is exceeded by significant differences by three of Radical-Reactionary categories; the small total number of "reactionary" choices, the relatively poorer delineation of "reactionary", and the small range of distribution making a correlation as high as .63 surprising. It seems probable to the experimenter that a more careful separation and classification of the Radical-Reactionary scale, throwing more of the disputed steps into the neutral category, would materially raise the above correlations. The "reactionary" position, too, offered most difficulty to the student raters whose ratings determined the categories of the separate steps. Hence it is not surprising that it should show a slightly lower reliability than the others.

The theoretical "average" college student at New York University can now be described as holding 1 reactionary opinion, 12 conservative, 5 neutral, 14 liberal, and 2 radical opinions out of 36 questions distributed over a wide field of problems.

The Effect of Social Stimulation in the Expression of Social and Political Opinions

To test the possible differences in the choices of the subjects due to such factors as the place of administering the tests, another group was given a retest in which their opinions were to be recorded at home instead of in the classroom. The previous retest given in the classrooms was utilized as a check of the effect of merely repeating the tests. When this first retest is examined for possible constant or consistent directions of shift in the values, none is found. There is a slight increase in the number of conservative choices, but so small that it is obviously to be written down as the results of chance. Minor fluctuations also appear in the other values but of negligible size. In this retest in which the work was done in the homes of the students the differences are not only significant, but they follow a consistent trend or pattern. In the 94 subjects who took this "home" retest there were 79 less reactionary and conservative choices and 79 more of the neutral, liberal, and radical. In taking a test at home the average person shifts an average of .84 of a choice toward the liberal end of the political spectrum. While this difference is not large, it nicely bears out what has been previously noted [1] about the effect on reasoning and judgments of the group situation, and the individualization of response in the two situations. Our "public" opinions are notoriously more conservative than our private reflections,[2] and the mere presence of the others in the classroom serves to provide the group inhibitions. It was expected that the typicality value should register something of this shift in opinion due to the situation, but none appeared. The typicality values showed as much tendency to increase in the retest at home as to decrease. On *a priori* grounds it might be expected that such individualization of opinion as would occur would be marked primarily in the direction of individualization, which would show as a lower typicality value. The actual change recorded was an average increase in the typicality value, but it was so small as to be entirely negligible. Apparently individuation of opinion is definitely directional, away from the conservative and reactionary and toward

[1] F. H. Allport, *Social Psychology*, pp. 274–278. Houghton Mifflin.
[2] E. D. Martin, *Psychology*, p. 192. Norton, 1924, N. Y.

the "liberal", whatever emotional or psychological factors this may imply.

Comparison of Two Groups by Means of the Reactionary-Radical Variable

As an alternative to the bare typicality measure for the comparison of the two groups studied, a direct comparison is offered on the basis of the number of each of the five categories of choices found in the two groups under consideration. The values given are the probable frequency for each category, were the tests to be given to 100 subjects with instructions to choose one step out of each of the 36 sets of five-step scales. The values are calculated on the basis of 706 cases for the New York University group and 148 cases for the Syracuse group.

	N. Y. U.	Syracuse	Difference	% Difference
Reactionary	195	165	30	18.2
Conservative	1121	1402	281	25.0
Neutral	524	521	3	0.5
Liberal	1483	1334	149	11.2
Radical	293	184	109	59.2

This would seem to indicate that there are consistent directions of deviation between the groups along the lines of the four categories, for the average per step deviation between them is but 4.9 per cent, while in summing up the differences on the radical steps the total difference is *twenty* times the chance difference, and *thirty-four* times on the conservative steps. Or, stated in other terms, New York University shows 59 per cent more "radical" choices than Syracuse, and Syracuse shows 25 per cent more "conservative" choices than New York University. New York University has also six times more than a mere chance difference in the number of reactionary choices.

Another group of 204 cases from the University of Washington, Seattle, was also sampled. This group, consisting mainly of freshmen and sophomores, differs even more from the New York City group than does the Syracuse-Dartmouth group. Yet the proportions on most of the steps are so nearly alike that the values for the 180 steps on the 36 scales, correlated by the product moment method, still gives a plus correlation of .914 (P.E. .008). This certainly does not look as though the empire were going to fall apart because of a lack of commonalty of opinions between the remote corners of it. However, a considerable difference still is hidden in the difference between a .91 and a perfect correlation. When the differences are totaled on the basis of the number of

choices in each category we find that in a theoretical 100 subjects taking the 36 scales, and choosing one step in each, we would have:

	N. Y. U.	Washington	Difference
Reactionary	195	243	48
Conservative	1121	1421	300
Liberal	1493	1225	258
Radical	293	203	90

This is perhaps best summed up by saying that the 100 Washington students would give one a total of 348 more Reactionary and Conservative answers on the 36 scales than would the New York group, roughly three and one-half more answers on the conservative side per individual.

Part Two

The second objective of the study was to discover if there were any grounds for the popularly held theories of certain mental or personality traits accompanying particular shades of political and social opinions. The degree of consistency and reliability established for the test warranted the assumption that it could be used as a means of determining the individuals of extreme differences, representing the "poles", so to speak, of political and social opinions. It was not thought probable that any traits or measures obtained on the various personality tests would warrant correlations with the whole range of political opinion, so the extreme cases of each category were selected for examination and comparison. To this end, the individuals falling into the extreme 10 per cent on each of the distributions were designated respectively as the "Reactionaires", "Atypicals", etc. The following table gives the minimum qualifications of the subjects for being considered as belonging to one or other of the extreme groups:

Categories	Qualifications
Extreme Atypicals	Average Typ. .29 per step or less
Extreme Typicals	Average Typ. .41 per step or over
Extreme Reactionaries	5 Reactionary choices or over
Extreme Conservatives	18 Conservative choices or over
Extreme Liberals	21 Liberal choices or over
Extreme Radicals	8 Radical choices or over

Composition and Overlapping of Extreme Groups

The following table gives the number of cases of each of the extreme categories that also qualified for the other categories. The principal overlapping comes, of course, between the "Typicality" separations and the Radical-Reactionary classes. Thus, of the 71 extreme Atypicals, 22 also qualify as extreme Reactionaries, 3 as Conservatives, 4 as Liberals, and 44 as Radicals.

	Atyp.	Typ.	React.	Cons.	Lib.	Rad.
Atypicals	71	0	22	3	4	44
Typicals	0	63	0	7	1	0
Reactionaries	22	0	65	5	0	4
Conservatives	3	7	5	62	0	0
Liberals	4	1	0	0	58	6
Radicals	44	0	4	0	6	60

The apparent anomaly of four individuals occurring in both the "Radical" and "Reactionary" categories should not be made the basis speculation of overlapping characteristics. Three of the four were interviewed personally (not by the experimenter, but by a delegated student working unofficially) and it was discovered that they admitted amusing themselves by marking the extreme positions at random. The cases were left in, however, to avoid the charge of "handpicking" cases. The extreme Typicals seem to be a quite discrete group. The Atypicals, however, seem to be composed of one-third "Reactionaries" and two-thirds "Radicals". As was to be expected, in the Reactionary-Radical separation the overlapping comes between the Reactionaries and Conservatives, on the one hand, and the Liberals and Radicals, on the other. The next table will show the same general fact in quite another manner.

Below are given the average number of choices in each of the categories made by the individuals of the extreme groups. Their average typicality value is also included.

	Typ.	Reac.	Cons.	Neut.	Liber.	Rad.
Atypicals	27	2.8	6.4	3.8	14.5	8.40
Typicals	42	0.7	13.8	6.1	14.2	1.1
Reactionaries	31	6.0	12.1	4.9	10.1	2.6
Conservatives	37	2.0	18.7	5.2	9.2	0.5
Liberals	35	0.4	4.5	4.5	22.4	3.8
Radicals	28	1.2	3.3	3.9	16.9	10.7

To explain briefly, the 58 extreme liberals had an average typicality value of 35, averaged 0.4 reactionary choices each, 4.5 conservative choices, 4.5 neutral choices, 22.4 liberal choices, and 3.8 radical choices. Here the closer kinship of Reactionary and Conservative as against Liberal and Radical is clearly shown. Note the comparative number of each of the classes of choices. On the typicality measure we observe, however, that in the tendency toward popular, common, or modal opinions, the Conservatives and Liberals are more nearly kin, as are also the Reactionaries and Radicals. One is tempted to refer the whole distribution of opinions to the normal-frequency curve, with the Radicals and Reactionaries occupying the extremes and the Liberals and Conservatives occupying the more thickly populated part of the curve on

opposite sides of the median. Certainly the high frequency of liberal-conservative opinions would seem to make this the obvious conclusion.

Group	*Sex Differences* Per Cent Males	Difference from Chance
Group as a whole	58	
Atypicals	70	+12
Typicals	54	— 4
Reactionaries	58	0
Conservatives	45	—13
Liberals	60	+ 2
Radicals	61	+ 3

The factor of sex seems to play a part in the Atypicals and the Conservatives. In general, males run somewhat to atypicality and radicalism; females to typicality and conservatism. This is in general agreement with the findings of Allport and Hartman in regard to typicality, and the findings on the Conservatives agree with several studies where the separation of categories was limited to distinguishing Radical or Liberal from Conservative. Harper's study on teachers is the single exception. Comparing the typicality values of the sexes for the whole group of 706 cases gives a difference in medians for the sexes of only about one-third sigma, the females having the higher typicality. An indicative, but hardly a significant difference. That the difference in the means is probably a true difference is indicated by its size, which is over three times the sigma of the difference.

Differences in Family Incomes

Because a popular impression has it that differences in social and poltical opinion derive largely from differences in economic status, the reported family incomes of the different extreme groups were compared:

Category and No. of Cases		Average Income
Atypicals	(70)	$6,868.00
Radicals	(60)	7,109.00
Typicals	(63)	8,177.00
Liberals	(58)	6,524.00
Reactionaries	(64)	7,724.00
Conservatives	(62)	10,450.00

These incomes have not been compared to the distribution for the whole group, but that the differences indicated are perhaps significant is given plausibility by the fact that the average incomes of these groups, calculated on half the cases, leaves them in much the same position, the Liberals, Radicals, and Reactionaries apparently lower than the Conservatives by a significant amount.

Order of Brith in Family

An item not ordinarily calculated to have a bearing on social and political opinions is suggested by the following:

Category (Extreme Groups)	Order of Birth					
	Only Child		Oldest Child		Youngest Child	
	F	%	F	%	F	%
Atypicals	7	11	26	39	5	7
Typicals	2	3	26	43	15	25
Reactionaries	6	11	22	39	8	14
Conservatives	0	00	19	32	14	23
Liberals	0	00	33	59	6	11
Radicals	6	10	24	41	8	14

It is, of course, unsafe to make generalizations from one group, but Atypicals, Reactionaries, and Radicals seem to have more than the chance number of "only" children. Conservatives and Liberals both seem a little short of this quantity, likewise the Typicals. The Typicals and Conservatives seem to have more than their share of youngest children, while all seem to run heavily to oldest children.[1] It somehow seems peculiarly fit that the more extreme positions should contain more "only" children; they have a reputation for more unusual emotional development.

Political Party Preference

The choice of political party expressed by the different groups indicates that the separation on the basis of the test parallels closely the popular designation of party labels, thus:

Extreme Cases	Percentage in Various Parties				
	Republican	Democrat	Socialist	Non-Partisan	Communist
Atypicals	16	19	31	30	3
Typicals	39	39	2	19	2
Reactionaries	40	38	2	22	0
Conservatives	66	26	0	8	0
Liberals	4	33	27	36	0
Radicals	2	10	44	41	3.5

Here the designations of Reactionary-Radical follow more closely popular party cleavage than does the typicality separation, and for good reasons, the concepts of Radical-Reactionary have been developed alongside definite party cleavage.

It was thought possible that the cleavage in opinion would follow certain family occupational lines, based on the father's occupation. The dominance of business men leaves but a small percentage to be shared by other occupations. The percentages are given for what they may suggest:

[1] See Goodenough and Leahy, *Ped. Sem. and Jour. of Genetic Psych.*, 1927, Vol. XXXIV, pp. 69–71.

Extreme Cases of	Business	Professional	Laborer	Retired
Atypicals	86	5	6	3
Typicals	87	5	5	3
Reactionaries	80	9	10	2
Conservatives	78	10	5	7
Liberals	89	6	6	0
Radicals	85	6	4	6

It is perhaps ironical that the laboring group should contribute fewer cases to the ranks of the Radicals than to any of the other categories. The differences are small, however, except perhaps when compared to the Reactionaries, to which group the laborers contribute 2.5 times as many as to the Radicals.

Differences in Religion and Culture

The dominance of the Jewish element in the New York City group makes the Christian group so small by comparison that to make a separation of Christians into Protestant and Catholic impractical for purposes of comparison. However, below are given the numerical groupings of each. It should be remembered that of the whole group tested about 80 per cent are Jews and 20 per cent Catholics and Protestants.

	Religious Origins			
Categories (Extreme Cases)	Jews	Catholics	Protestants	Per Cent of Probable F. C. & P. Comb.
Atypicals	51	9	9	139
Typicals	53	9	1	61
Reactionaries	36	16	12	311
Conservatives	41	13	8	210
Liberals	55	3	0	21
Radicals	54	4	2	44

This table clearly reveals the Jews to be the extreme liberal and radical element, and equally identifies the Christian element as the conservative and reactionary. The last column in the table is the combined Catholic and Protestant frequency, expressed in per cent of the probable frequency of Christians in the whole group.

In the Allport-Hartman study the radicals on the single question of "Distribution of Wealth" appeared to be those to whom the religious life was a rather more serious business. Quite contrary results are indicated here. Three degrees of church attendance were distributed, as follows:

	Regularly %	Occasionally %	Hardly Ever %
Atypicals	12	21	68
Typicals	5	55	40
Reactionaries	32	19	48
Conservatives	29	36	34
Liberals	4	19	77
Radicals	5	12	83

The motives for attending church show a similar variable:

	Worship Only	Worship and Social	Social Only
	%	%	%
Atypicals	16	24	60
Typicals	49	31	20
Reactionaries	45	28	28
Conservatives	32	53	15
Liberals	12	17	71
Radicals	7	15	78

These tables leave hardly any doubt but that it is the Radical group (and the Liberal) that is weak on both church attendance and devout motivation. Many in these last two groups wrote in illuminating comments instead of merely checking the motivation as generally "social only"; for example, "curiosity", "to have a good laugh", "to placate parents", or "can't imagine what would make me go", etc.

Following is a comparison of the groups on the basis of tests of scholastic prediction. In almost every case the individual's score was determined as the average of two different tests. One was the Otis Advanced Examination, Form A; the other the Thorndike "Reading" Test, Part III of Intelligence Examination for High School Graduates. The scores are expressed in percentiles, the value given being the mean score of each of the extreme groups.

Group	Mean Score (percentils)
Atypicals	44
Typicals	54
Reactionaries	39
Conservatives	41
Liberals	62
Radicals	48

This would appear to give the Liberals first place with a good decile lead over the Radicals in the second place, who in turn seem to lead the Conservatives and Reactionaries by another decile. A mean difference of almost one-tenth of the total scale range must be considered indicative. Additional reliability for the differences is indicated by the fact that averages for each group, calculated on half of the cases of each, still leave the groups in the same rank order. This seems to bear out the findings of G. W. Allport in a study made at Dartmouth and to be published shortly.

The Allport A-S test was applied to almost the entire group of 700 cases. Following is a comparison of the different extreme groups on the basis of this test,—the values given being the means of each group, calculated and recorded separately for the two sexes (all values plus except where otherwise indicated):

	Men	Women
Atypicals	3.2	8.8
Typicals	7.8	18.0
Reactionaries	0.2	12.4
Conservatives	9.3	11.3
Liberals	—0.1	8.7
Radicals	1.2	20.7

The number of each sex on which these averages are based is necessarily not as large as might be desired. The whole group of New York City students has a mean ascendance score considerably higher than the other groups on which the test was standardized. All these special groups, however, fall within the range of the two median deciles of the test with the following exceptions:

a. The conservative and the typical males are approximately one decile above the two median deciles.
b. The radical women fall in the second decile above the two median deciles—perhaps confirming somewhat the popular impression of the radical Greenwich Villager who has lost her maidenly modesty, and is asserting herself more vigorously. No other deviations are of sufficient magnitude to warrant special mention. The Liberals appear to be the most submissive group, both men and women averaging lower than the median deciles of the New York group.

The Laird C_2 Personal Inventory was also applied. Following are the mean scores, given separately for the sexes for each of the extreme groups:

	Men	Women
Atypicals	17.3	18.5
Typicals	14.3	16.0
Reactionaries	16.1	16.3
Conservatives	14.8	15.5
Liberals	16.6	17.5
Radicals	18.5	20.7
All Women (random select)	16.4 (Std. error .38)	
All Men	15.3 (Std. error .31)	

The weak point in the comparison is, of course, the smaller numbers in the special groups. Perhaps the best index of the reliability of the mean values is the fact that when calculated on half the cases the comparative values remain relatively unchanged. When the differences are compared to the standard error of the mean of the whole group it appears that the differences are probably significant. Thus the difference between the radical men and the group average is approximately ten times the standard error of the group. For the radical women the difference is around thirteen times the standard error. That the values for the special

groups is close to the value that would be found on a much larger group is further attested to by the fact that the groups divided on the basis of sex show almost identical divergences in the same directions. In general, the Laird C_2 test seems to mark off the Radicals as decidedly higher and the Liberals somewhat higher in the case of both sexes. The higher scores are held by the author of the test to indicate a greater degree of introversion. The Atypicals seem to share the divergence, but inasmuch as over 60 per cent of them are Radicals, and the non-Radical element in them tended markedly to contribute the low scores, it is probably safe to say that whatever traits are measured by the test are more closely correlated with such factors as produce "radicalism".

Differences in Emotional Stability

The most popular of all the comparisons popularly made between "normal" individuals holding orthodox or proper views and those holding more unusual views, have been on the basis of normal versus abnormal emotionality. As indicated in the review of previous literature, there is no lack of theoretical articles easily pointing out differences, but there is a lamentable lack of anything approaching experimental evidence. The difficulties involved are of course obvious. First of all, it is much easier to set up a straw man and then pin attributes on him at will than to find one in the flesh according to specifications. Second, there is the matter of a reliable test of emotional instability. All available tests leave much to be desired. The Woodworth Personal Data sheet is ordinarily relied upon as an indicative measure, but the raw score on that test has been found to be highly unreliable for any sort of separation.[1] Garrett and Schneck[2] have recently published a study of the discriminative value of the Woodworth test, in which they used for bases of comparison 256 papers filled out by psychoneurotics during the war as against Columbia University freshmen. As a result of this study they have found 42 questions out of the 116 whose occurrence among presumably genuine psychoneurotics is sufficiently higher than in normals that they can be considered truly diagnostic. This seemed the most reliable measure for application and was applied to all cases taking the test (1070). A few of the questions were omitted because they applied to one sex alone, but none of those omitted are in the list of the significant items. This was done in order to simplify the administering of

[1] Fleming, Thesis at Columbia University (to be published).

[2] Garrett, H. E., and Schneck, M. R., "A Study of the Discriminative Value of the Woodworth P. D. Sheet," *Journal of General Psychology*, Vol. 1, pp. 459–471.

the tests to both sexes without the use of different forms. Probably no significant changes followed from this procedure. On the basis of a preliminary trial made a year previously on a smaller number of political scales, it had seemed that a significant item in marking off typical from atypical individuals was the number of the Woodworth test items that the subjects indicated as having worried them, whether or not they gave a "wrong" answer to the question. For these tests, then, a special "yes" and "no" was added to the sheet opposite the questions to be checked for the "worry" factor. The findings on the extreme groups can best be classified by a table (Woodworth scores—mean):

	Men			*Women*		
	Total Score	Signif. Items	Worries	Total Score	Signif. Items	Worries
Atypicals	22	10.7	10.3	25	12.7	11.6
Typicals	12.6	7.0	6.8	17.4	10.4	8.5
Reactionary	18.7	9.8	7.7	25	12.7	13.5
Conservative	17.0	9.9	7.7	21.6	10.8	10.9
Liberals	17.6	9.2	11	20.2	11.3	8.9
Radicals	21.7	10	9.9	25.3	12.6	9.5

This table can give but scant comfort to anyone who would use it to paint any shade of political opinion as inclined in the direction of the pathological. As can be seen at once, the average for the whole New York City group is considerably higher than the values found by Garrett and Schneck for the Columbia freshmen, who averaged 6.8 of the significant items against 11.7 for the *bona fide* psychoneurotics. Clearly some more penetrating means must be found of separating normal from pathological.

Garrett and Schneck suggest on statistical grounds and on the basis of their groups that anyone with more than ten of the significant questions answered wrongly was open to serious suspicion of abnormality. This criterion applied to our 370 cases as divided into six special groups gives the following results:

Group	Per Cent Males 10 or Over	Per Cent Females 10 or Over
Atypicals	56	67
Typicals	18	59
Reactionaries	50	74
Conservatives	43	62
Liberals	51	57
Radicals	45	56

This table seems to upset the slight prediction one might have made from the first table that the radical men and women both were inclined more toward the unstable on the basis of total score on the whole test. On this table, which represents the per cent of cases above the "danger line", the Radicals are, if anything,

somewhat lower than the average. On the previous table the "worry" item made good its prediction of the previous test in appearing with greater frequency with the Atypicals, but the value is probably of no significance, for while the values for men and women are in apparent general agreement, they really fall on opposite sides of the medians calculated separately for the two sexes. Nothing other seems to suggest itself for the "worry" item.

It may be objected that the groups separated out from among peaceable students do not truly represent the characteristic groups referred to as "radical", etc. With this really plausible objection in mind, attempts were made to get access to some *bona fide* groups of whose political complexion there could be no question. Such groups are scarce, and in addition have a quite understandable resistance to submitting to promiscuous testing. However, a good piece of luck gave access to a group of Communist party members who, being given the "dare" to submit to testing, accepted the gage and took the Woodworth test. They were informed that it was a test of "emotionality", but that there was no *a priori* method of telling what was the "normal" reaction. They seemed to try to be very objective from the questions they put as to the interpretation of some of the questions. Thirty-six in all took the test. In scoring their tests, every question that was answered with a qualification instead of a "yes" or "no" was considered a "wrong" answer. The results are tabulated in the following table:

	Average Total Score	Average Significant Items
Men (28 cases).....	8.2	4.1
Women (8 cases).....	11.0	5.7

Only one case of the 36 had over 10 of the significant items "wrong".

Nor was any better luck attended the attempt to find signs of abnormality among outstanding leaders of radical movements. The half-dozen nationally known figures so far examined on this test reveal generally lower scores than do the college freshmen of Garrett and Schneck's study.

It might be argued with some plausibility that the test is wholly worthless for diagnosis. But careful observation and interviews with such subjects as appear among college students with very high "significant" scores seem to argue convincingly that the test does mark out a large number of cases with hysterical symptoms or with histories of "nervous breakdowns".

Two other tests were given to the groups in the attempt to find

differentiating factors: the Kent-Rosanoff association test and an adaptation of Cason's test of suggestibility in imagery. The K-R test was given as a group test, using the full 100 words. This was scored two ways, both for the average frequency value as compared to the K-R standard tables, and also for the number of responses scoring a frequency value of ten or less. In the suggestibility in imagery test the scores taken were the total excess in reported vividness of images reported on twenty stimuli that were given them with the suggestion that previous tests had shown that these cues gave good, vivid images, as against twenty others given with the opposite suggestion. The following table gives the mean values for each of the extreme groups on both these tests.

Group	Kent-Rosanoff Av. Freq. Value	K.-R. Responses 10 or Less	Suggestibility (Positive)
Atypicals	96.5	37.9	2.8
Typicals	111.6	29.7	3.5
Reactionaries	101.1	34.6	5.5
Conservatives	108.9	31.0	4.6
Liberals	104.0	32.5	4.4
Radicals	89.0	43.1	3.0

The results on the K-R test most emphatically bear out the findings of both Moore and Washburn. The Radicals have without doubt the most extreme scores, both on the frequency values and on the number of individualized responses. Typicality of opinions also correlates without doubt with typicality of single verbal associations, for the Typicals have the highest frequency values for their responses and the lowest number of individualized responses. Conservative and Liberal, being more nearly mean positions, reflect this same quality in their scores. In the suggestibility scores the extreme Atypicals and the Radicals were most immune to such influence, while the Reactionaries and Conservatives were most influenced. These results, while unfortunately based on fewer cases than could be wished, are probably of some significance for the relative positions of the groups remains essentially the same when the values are calculated on half the cases. It is to be remembered, too, that Moore found a similar difference between the Radicals and Conservatives (as measured by his test) in an entirely different test of suggestibility than the one used here.

The extreme cases were also selected out of the two hundred odd University of Washington cases. Not much significance can be attached to so few cases, but it is interesting to note that even in so small a group the differences as noted in the New York University group reappear with almost uncanny fidelity wherever similar measures were obtained on the two groups. Specifically,

there reappeared in the respective extreme groups the same differences in sex ratios, in the ratios of Jews to Christians, in order of birth in the family, in amount of devout observances, in the trait of ascendance-submission, in the Laird C2 test, and in the number of symptomatic responses on the Woodworth Personal Data sheets. In this last there is agreement all along the line, retaining even exactly the same order of frequency between all four groups (Radical, Liberal, Conservative, Reactionary) and both sexes. The rank order of the mean "intelligence" test scores of this group varies a little from the order in New York University. At Washington the Conservatives are lowest, with Reactionaries, Liberals, and Radicals following. This agrees with the New York results to the extent of locating the main cleavage in intelligence between the Radicals and Liberals on one hand and the Reactionaries and Conservatives on the other. The incomes of the families from which these groups come give the Conservatives the highest average, with Reactionaries, Liberals, and Radicals following. This is again in general agreement with the New York findings, with the additional irony of a perfect inverse ratio between intelligence and income levels.

Conclusions

The results of these comparisons offer much opportunity for speculation. First of all, it is by no means certain that the individualized "set" of atypicality or the attitude of conformity in the extreme typicals is not a more fundamental factor than the traits or "sets" that underlie the attitudes described under the more popular labels. While it is true that the higher reliability of the popular categories for prediction, as revealed by the higher correlation coefficients, argue strongly for these factors as more basic, still, that may be due to the conditions of the experiment. The fixed scale, confined to one variable, does not give the atypical "set" much chance to really exhibit its proclivities. It is possible that, given a chance to express an opinion rather than merely check one, the atypical set would prove the more consistent. Used as a means of comparing groups, the typicality values of the various steps of the scales do not give any clue as to the nature of the differences between groups, but when the paired values for the steps are correlated a rather exact and simple measure of similarity between groups is obtained.

The extremes on the typicality measure seem to mark off quite distinctive groups, at least groups with some fairly consistent differences. This study confirms the characteristic sex differences

found in the Allport-Hartman study, which are as great as the sex differences between any of the other extreme groups. Significant differences between these groups appear also on the basis of average family income, order of birth in the family, religious origins, religious observances, intelligence test scores, the personality trait of ascendance-submission, the traits measured by the Laird C_2 test, "wrong" answers on the Woodworth P.D. sheet, the items worried about on the Woodworth sheet, Kent-Rosanoff scores, and perhaps suggestibility. Certainly some fairly constant factors are operating to produce these consistent differences. That this is probable is further justified by the fact that the Radicals and the Reactionaries, who compose the major portion of the atypicals, in many cases fall on the same side of the typicals or Conservatives instead of on opposite sides. This is true of income of family, order of birth in family, ascendance, introversion, and K-R score. The differences between Radical and Reactionary are no less striking. Certainly in the matter of social and political opinions these groups seem to form the opposite poles. This is also reflected in their own preferences in political parties. Their differences in racial and cultural origins is equally marked, as is their practice of devout observance, in which the Reactionaries are by all odds the most pious group. The Liberal-Radical groups are easily superior in intelligence as marked by tests, and the Radical women stand out as decidedly ascendant. Radicals are decidedly more introverted (as measured by the Laird test) than Reactionaries. With considerable assurance, however, it can be said that it is fairly well established that there are several possible methods for the more accurate measurement and classification of political and social opinions, and that these methods can be shown to have a fair degree of reliability, both for consistency on the same questions and for prediction on other questions. These reliabilities can probably be increased by improvements in the classification of the various steps. Not only is it possible to show a dichotomy in the field of social and political opinions, but a much more detailed separation into four rather distinctive and consistent attitudes, corresponding roughly to the classifications made in popular discussion, has been shown.

The groups separated on the Reactionary-Radical variable not only show a consistent and predictable degree of preference for each of the attitudes, but are marked as different groups on the basis of other tests. Thus there are sex differences, with women more conservative and men more liberal and radical; family income differences, with Conservatives and Reactionaries more prosperous

than Liberals and Radicals. There are differences in order of birth in the family, with Radicals, Atypicals, and Reactionaries better represented by only children, Liberals coming more from oldest children, and the youngest children contributing more Conservatives and Typicals. These follow somewhat the contemporary political parties, with the Reactionaries and Conservatives dominantly republican; the Liberals split between democratic, socialist, and non-partisan; the Radicals reporting themselves as socialists or non-partisan. Differences in religious origins and cultural differences are reflected in the dominance of Christians among the Reactionaries and Conservatives and the dominance of Jews in the Liberals and Radicals. The Reactionaries and Conservatives admit decidedly more religious observances than the Liberals and Radicals. On intelligence tests the Reactionaries and Conservatives make the poorest showing, while the Liberals and Radicals make the best. The personality trait of ascendance seems to mark more atypicality as paired with submissiveness in both sexes. Typicals and Conservatives are generally ascendant, Liberals and Radical men submissive, with the Radical women most ascendant of all. These differences tempt one to theorizing. Both Atypicals and Radicals are marked by the Laird test as more introverted, whatever the significance of this test may be.

With considerably more finality can it be said that there is no ground for the popular speculations which ascribe a considerable degree of abnormality to the holders of unusual or unpopular opinions. While it is true that on the total number of "wrong" answers on the Woodworth test the Radicals lead, the fact that the Radicals have the smallest percentage of cases registering over ten of the significant items would merely seem to show that the Radicals were more objective and willing to admit symptoms of emotional distress. The larger number of non-significant items checked simply gives greater reliability to the number of their significant items. And this item makes the Radicals obviously the most normal of all the special groups, and by contrast leaves the Reactionaries with the suspicion of abnormality if it is to be placed anywhere. Certainly one would not be hard put to find contributory evidence of emotional abnormality in the behavior of the professional guardians of the institutions and customs of the past in those who oppose every innovation the day brings forth.

The greater individualization of both Atypicals and Radicals is admitted and confirmed by the Kent-Rosanoff measures. But mere individualization is not identical with abnormality. Further analyses of this factor on the K-R tests of these subjects are still

in progress and are to be reported at a future date. Thus, while the popular impression of the relation between political opinions and the personality of the individual cannot be substantiated, it is none the less obvious that among the causal factors making for the holding of the various shades of political and social opinions there must be included various factors that are at present best described as traits of personality. This, of course, without any attempt to deny or belittle the obvious part played by various other factors best described in cultural or environmental terms.

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BIBLIOGRAPHY

Albert, A. D., "Tents of the Conservative," *Scribner's Magazine*, July, 1922.

Allport, F. H., *Social Psychology*, Houghton Mifflin, 1924.

Allport, F. H., and Hartman, D. A., "The Measurement and Motivation of Atypical Opinion in a Certain Group," *American Political Science Review*, Vol. XIX, pp. 735–760; also "A Technique for the Measurement and Analysis of Public Opinion," *Publications of the American Sociological Society*, Vol. XXXII, 1926, pp. 241–244.

Allport, F. H., and Allport, G. W., *The A–S Reaction Study*, Houghton Mifflin, New York, 1928.

Anderson, W. A., "The Occupational Attitudes and Choices of a Group of College Men," *Social Forces*, 1927, Vol. 6, p. 278.

Bourne, Randolph, *History of a Literary Radical*, B. S. Huebsch, New York, 1920.

Bridges, J. W., "Emotional Instability of College Students," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. XXII, 1927, pp. 227–234.

Cason, Hulsey, "The Rôle of Suggestion in Imagery," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. XX, 1925, pp. 294–298.

Davis, J., "Testing the Social Attitudes of Children in the Government Schools in Russia," *American Journal of Sociology*, 1927, Vol. 32, pp. 947–952.

Garrett, H. E., and Schneck, M. R., "A Study of the Discriminative Value of the Woodworth P. D. Sheet," *Journal of General Psychology*, Vol. 1, pp. 459–471.

Goldman, Emma, "Johan Most," *American Mercury*, June, 1926.

Harper, M. H., "Social Beliefs and Attitudes of American Educators," *Teachers College Contributions to Education*, No. 294, 1927.

Howells, T. H., "A Comparative Study of Those Who Accept as Against Those Who Reject Religious Authority," Reviewed in *Religious Education*, 1927, Vol. 22, University of Iowa Studies.

Hugins, Roland, "Confusion Among the Liberals," *American Mercury*, December, 1928, Vol. 15, No. 60.

Jones, E. S., "Opinions of College Students," *Journal of Applied Psychology*, 1926, Vol. 10, pp. 427–436.

Laird, Donald A., *The C_2 Personal Inventory*. Published by Hamilton Republican, Hamilton, New York.

Lundberg, G. A., "The Newspaper and Public Opinion," *Social Forces*, 1926, Vol. 4, pp.709–715; "Sex Differences on Social Questions," *School and Society*, 1926, Vol. 23, pp. 595–600; "Demographic and Economic Basis of Political Radicalism and Conservatism," *American Journal of Sociology*, 1927, Vol. 32, p. 719.

Manry, James C., *World Citizenship*, University of Iowa Studies in Character.

May, Mark A., and Hartshorne, "Personality and Character Tests," *Psychological Bulletin*, Vol. 23, No. 7, July, 1926; Vol. 24, No. 7, July, 1927; Vol. 25, No. 7, July, 1928.

Meier, Norman C., "Motives in Voting—A Study in Public Opinion," *American Journal of Sociology*, Vol. 31, September, 1925.
Meltzer, Hyman, "Children's Social Concepts," *Teachers College Contribution to Education*, No. 192, 1925.
Moore, H. T., "Innate Factors in Radicalism and Conservatism," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. XX, 1925, pp. 234–244.
Moore, T. V., "A Study of the Poet Shelley," *Psychological Monographs*, Vol. 31, No. 2.
Murphy, Gardner, *History of Psychology*, Harcourt Brace, New York, 1929.
Neumann, "A Study of International Attitudes of High School Students," 1926, *Teachers College Contribution to Education*.
O'Higgins, Harvey, *The American Mind in Action*, Harpers, New York, 1928.
Parker, Carleton H., *The Casual Laborer and Other Essays*, Harcourt Brace, New York.
Paton, S., "The Psychology of the Radical," *Yale Review*, October, 1921.
Reed, E. F., "Does the Individual Tend to Be Consistently a Progressive or a Conservative?" *Social Forces*, 1927, Vol. 6, pp. 49–52.
Rice, Stuart A., "The Behavior of Legislative Groups," *Political Science Quarterly*, 1925, Vol. XL, No. 1 (March); *Quantitative Methods in Politics*, Alfred A. Knopf, New York, 1928; "Motives in Radicalism and Social Reform," *American Journal of Sociology*, March, 1923, Vol. 28, p. 579 ff.
Root, W. T., "The Psychology of Radicalism," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 1925, Vol. XIX, pp. 342–354.
Schroeder, Theodore, "Conservative, Liberal and Radical," *Psychoanalytic Review*, 1920, pp. 376–385.
Shapiro, J. S., "The Revolutionary Intellectual," *Atlantic Monthly*, 1920, pp. 820–830.
Spargo, John, *The Psychology of Bolshevism*, Harpers, New York, 1919.
Stoddard, Lothrop, *The Revolt Against Civilization*, Scribners, New York, 1922.
Symonds, P. M., "A Social Attitude Questionnaire," *Journal of Educational Psychology*, 1925, Vol. 16, pp. 316–322.
Tait, W. D., "The Menace of the Reformer," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. XXI. p. 343.
Thurstone, L. L., "Attitudes Can Be Measured," *American Journal of Sociology*, January, 1928, Vol. 33, No. 4, p. 529; "The Measurement of Opinion," JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, Vol. XXII, p. 415.
Vaughan, W. F., *The Lure of Superiority*, Holt, New York, 1928.
Washburn, M., and Others, "The Moore Tests of Radicalism and Conservatism," *American Journal of Psychology*, 1927, Vol. 38, pp. 449–452.
Watson, G. B., "A Test of Fair Mindedness," *Industrial Psychology*, 1927, Vol. 2, pp. 84–92.
Willey, Malcolm, and Rice, Stuart, "William J. Bryan as a Social Force," *Journal of Social Forces*, March, 1924.
Wolfe, A. B., *Conservatism, Radicalism and Scientific Method*, Macmillan, New York, 1925.
Yarros, *Psychological Review*, May, 1922.
Zeleny, L. D., "Measure of Social Opinions of Students," *Journal Applied Sociology*, 1926, Vol. 11, pp. 56–64.

AN EXPERIMENTAL ANALYSIS OF SOME GROUP EFFECTS [1]

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Introduction.—A striking contemporary development in the field of social psychology is the envisagement of its phenomena in terms of the stimulus-response concept, so familiar and fundamental in the psychology of the individual, and in terms of stimuli and responses as interrelations between the individuals composing the social whole or wholes. Formulated in this more precise manner, problems of social psychology become more directly subject to experimental attack, and so the causal or influencing factors more identifiable and measurable.

Experimental procedures have for the most part been directed to the problem of the effects upon one individual's efficiency of other people in the immediate environment. This general problem, however, turns out to be complex; and the attention of different investigators has turned to various aspects thereof.

One aspect of this general problem takes the form: What is the effect upon an individual's work of the presence of quiet auditors or spectators? Travis ('25) found that of 22 individuals trained singly in a hand-eye pursuit coördination test, 18 made a higher average of ten consecutive scores when tested before an audience than when alone. Gates ('24), using as tests coördination, color naming, analogies, and naming words, found no reliable differences between groups tested before 1 observer, before 4 to 6, and before 30 to 40; but, using as evidence the direction of small differences, she observed that performance was in general poorest under the last-named condition, especially for the better individuals.

Another aspect of the general problem may be put: What is the effect upon an individual's work of overt vocal attitudes on the part of other persons? Cason ('25) showed that the vividness of students' voluntary imagery as reported by them was increased or decreased by corresponding suggestions from an

[1] Presented in part at a symposium on Social Psychology at the Ninth International Congress of Psychology.

instructor in 45 cases out of 50. Gates and Rissland ('23) found that encouraging or discouraging comments had a helpful effect upon scores in a motor coördination and a color-naming test, a slight advantage lying with the former; but they found these differences slight. This was in line with the general type of results obtained by earlier investigators (Brand, Jones, Strong, Bell, Small, Binet, Pearce, and others). Laird ('23) observed that "razzing" by fraternity brothers-to-be tended to produce poorer records made by initiates on four motor tests, but not uniformly for all tests nor for all initiates.

A third phase of the general problem is: What is the effect upon an individual's performance of the presence of a co-working but non-competitive group? Some earlier investigators—Mayer ('03), Schmidt, and Meumann—had each found a definite facilitating effect on the work of school children when done in the presence of co-workers compared with that done alone. Allport ('20, '24), working with adults, and using free chain-association, argumentation, letter cancellation, multiplication, attention to a reversible perspective, and judgments of odors, found that when working in a group the individual tends to show greater speed (from 93 per cent to 57 per cent of the individuals in the different tests) but poorer quality of work. By instructions to his groups he reduced the rivalry motive to its lowest possible point. Weston and English ('26) found 8 out of 10 adults to make higher scores on intelligence test materials when working in a group than when alone; but Farnsworth ('28) failed to obtain these results with a larger number of subjects and more detailed control of technique, although he noted improved work in the group on the more difficult test items. Sengupta and Sinha ('26) found 5 subjects to do faster work in cancellation of letters when working together. Travis ('28) found that stutterers showed an effect of co-workers upon individual achievement in free chain-association of an opposite character (loss) from that shown by Allport's non-stutterers.

A fourth aspect of the general problem may be formulated: What is the effect upon an individual's performance of the presence of competitors working in explicit rivalry? Triplett ('97) in an early study set 40 children to turning fishing reels at maximum speed, singly and in competing pairs; and he found that under the latter condition 20 were stimulated favorably, 10 unfavorably, and 10 little affected. Moede ('14, '20) found that

when working in rivalry, the individual boy tended to approach the speed of his competitors, the faster boys showing retardation and the slower, facilitation; and that when the whole number (17) was divided into fast and slow groups, both groups speeded up. When Whittemore ('24) had 12 college students do typing with rubber stamps, working in groups but under two kinds of instruction, "to compete" and "not to compete", every individual did faster but poorer work when competing. Hurlock ('27) divided 78 school children into two groups which were instructed to compete with each other as groups, while working on addition tests; and she observed striking improvement in the work of these groups as compared with that of a control group, the improvement holding both for speed and for quality of work.

Problem.—It was the aim of the present experiments to study several of these different phases of the general problem concerning the effect of other people upon an individual's work, at one and the same time. In each of the investigations referred to above, the general type of procedure was to compare with the typical "control" situation, individual-working-alone, some one social or "experimental" situation, individual-working-in-rivalry-with others or -before-an-audience or -in-presence-of-co-working group, etc. In the present case it was thought that by testing out several different situations with the same human subjects in the course of the same experimental program, more direct comparisons could be made between one social situation and another affecting individual efficiency, and relative evaluations approached.

More specifically, it was first desired to make inter-comparisons between the individual's achievements when working alone (A), when working together with a co-working but non-competitive group (T), when striving to excel others of the group as his rivals (R), and when working under the close observation of spectators (O). This was the project in the first experimental series. Later it was desired to examine the situation "alone" to see whether a difference in details of experimental procedure as noted in the literature, might not produce a difference in the "aloneness" of this situation. This, if present, would be revealed as a difference in the individual's efficiency when working alone but simultaneously with others and with a time signal arrangement connected with theirs (AS), and when working alone at a different time and with one's own independent time signals (AD).

General Procedure.—As the subject-matter upon which the

individuals were to work and by which their efficiency might be measured, selection was made of the following tests: Multiplication of two-place by two-place numbers, 36 examples to a sheet; mixed relations or analogies, 45 examples to a sheet; and free serial word-associations. Material for the multiplication and the mixed relations tests was mimeographed, and for the serial association tests a blank page was furnished. All sheets for all tests had explicit instructions and sample items mimeographed upon the back, which were read over in every case before the sheet was turned up for work at the "go" signal; and were also read aloud by the experimenter on the first occasion. Five alternative sets of all materials were provided. To equalize the difficulty of the alternative multiplication tests much the same digits in the successive examples were used in composing the different sheets, with various simple but sufficiently altering changes adopted: transposition of digits within each two-place number, exchange of digits between multiplicand and multiplier, alternation of the order of the problems, etc. The materials for the mixed relations test were taken directly from the standardized list of Pintner and Renshaw ('20), in order from easiest to hardest; and equalization of alternative sheets was sought by copying from that list in rotation.

Instructions to the subjects were of the usual type, they being urged to work "as *accurately* and as *fast* as you can". The items of the multiplication and the mixed relations tests were to be taken in a definite order with no skipping. In the serial association test the subject was to speak words silently, using "any words that come to you, only they must not make phrases or sentences"; and he was to jot down the first two or three letters of every second word as it came.

In each situation the test series included a 4-minute working interval on the multiplication test, a 4-minute interval on the mixed relations test, and three 1-minute intervals in close succession on the serial association test.

To check extraneous factors the usual precautions were adopted. With different sections of the whole group the situations were taken in different orders, the three tests were attacked in different orders, and the alternative mimeographed test forms were used in different orders, each of these variations being independent of the others. Also a preliminary series was run to acquaint the subjects with the character of their tasks.

The subjects used were college undergraduates, mostly of sophomore grade, who were members of beginning classes in psychology. Their active coöperation was secured by crediting their work on this research against their laboratory requirements in those courses.

Results of First Series.—In the winter quarter of 1929, 38 students served as subjects and in the spring quarter of 1929, 55 students served; each group being divided into laboratory sections of about 15 members each and meeting at different scheduled times.

In the alone (A) situation, the individuals worked in separate rooms throughout two floors of the building, their time signals being by buzzers locally placed and plugged in on a wiring system centrally controlled by the experimenter. In the together (T) situation, they were seated about two large tables, and were explicitly and repeatedly told not to compete as their results would never be compared with each others'. The rivalry (R) situation was the same except that they were bidden now to compete in view of a later comparison of their scores. In the under-observation (O) situation, the students were seated 3 to a small table, one working while the other two watched him closely and attentively, gazing at his face, hand and pencil, etc. (but not looking at his test material in case they had not yet served their turn as subject). In situations T, R, and O, a buzzer same as those used in A, was employed to sound time signals.

TABLE 1

	Winter, 1929					Spring, 1929			
	Multiplication: Speed					*Multiplication: Speed*			
	Highest	Second	Third	Lowest		Highest	Second	Third	Lowest
A	8	3	16	11	A	12	10	12	28
T	5	6	11	16	T	4	14	15	18
R	8	18	5	8	R	17	16	9	9
O	18	11	6	3	O	20	15	14	6
	Multiplication: Accuracy					*Multiplication: Accuracy*			
	Highest	Second	Third	Lowest		Highest	Second	Third	Lowest
A	13	11	9	5	A	16	12	11	14
T	7	13	12	6	T	11	16	11	15
R	11	7	7	13	R	15	13	15	15
O	7	7	11	13	O	14	12	14	10
	Mixed Relations: Speed					*Mixed Relations: Speed*			
	Highest	Second	Third	Lowest		Highest	Second	Third	Lowest
A	9	7	13	9	A	8	11	21	12
T	6	7	13	12	T	5	5	9	35
R	5	12	7	14	R	15	23	13	6
O	18	13	4	3	O	28	15	11	1

Mixed Relations: Accuracy

	Highest	Second	Third	Lowest
A	9	8	11	10
T	12	14	6	6
R	9	10	10	10
O	8	6	12	11

Mixed Relations: Accuracy

	Highest	Second	Third	Lowest
A	17	15	14	8
T	18	11	10	15
R	11	19	12	12
O	9	10	16	19

Serial Associations: Speed

	Highest	Second	Third	Lowest
A	4	11	12	11
T	5	8	15	10
R	7	8	9	14
O	22	11	2	3

Serial Associations: Speed

	Highest	Second	Third	Lowest
A	3	9	29	14
T	0	4	17	33
R	21	26	6	2
O	31	16	3	5

Results with the two groups of subjects are presented in Table 1. The figures furnished do not represent absolute scores but *relative* values of the scores made in the different situations. The papers of each subject were *ranked* as best or highest, second, third, and poorest or lowest, with respect to the four different situations under which they were done; then the *total number of individuals* who made a certain rank of score *in a given situation* is shown by a number in the table. (*E.g.*, with the Winter group, and considering speed in multiplication, 8 individuals did their fastest work in situation A, 3 did their second fastest work in A, 16 their third fastest in A, and 11 their slowest in A; while 5 did their fastest in T, 8 their fastest in R, and 18 their fastest in O.) In determining total ranking split ranks did not always total whole numbers, and fractions in the totals have been disregarded in the table, hence certain slight inequalities in grand totals of rows or columns.

The ranking method was considered sufficiently refined for present purposes, in view of the complexity of the situations used even under attempt at experimental control, and in light of the fact that this method has shown suggestive results in other investigations mentioned in the Introduction where more precise statistical treatments brought little to light.[2]

[2] Generally speaking, the various studies of group effects have tended to show little or nothing when the data of test results are handled in the conventional statistical procedure. When the test scores of the individuals examined are treated to show, *e.g.*, their mean and their average deviation, often little comes to light. Yet when the individuals are counted in terms of how many show one or another difference within his own test results, certain directions among these small differences may become marked. Consider, for instance, the fact that in one of the studies of Travis ('25) he found the differences between group averages of the ten scores made by all individuals before an audience and of the ten best scores made alone to be "statistically unreliable," yet 18 out of the 22 individuals, or 81.8 per cent, had higher individual score averages in the former.

Inspection of the total rankings in Table 1 brings out a few general trends. Speed in multiplication is shown to be facilitated most in situations O and R, especially the former. Accuracy in multiplication seems to be slightly higher in A. Speed in mixed relations is definitely highest in O. Accuracy in mixed relations is, by a small difference, lowest in O, with a tendency to highest in A and in T. Speed in serial association is clearly highest in O, with R probably second. Other comparisons of some interest are suggested, but the differences are slight.

More generally, the facilitation of speed when work is done merely in the presence of a co-working group over that done in isolation, as observed by some investigators, is not clearly indicated here. What would seem, from our results, to be important phases of a social situation as increasing an individual's speed are the presence of some of the competitive attitude or else of some of the being-observed attitude.

Results of Second Series.[3] The question arose, may not the so-called "alone" situations of different investigators really be different in character? More specifically, is the "alone" situation in which the subjects are working in different rooms but simultaneously and with signals controlled from one common center, calculated to set up something of the same attitude in the individual as does the physical presence of others? To determine this point, an experimental series was run in the summer of 1929.

Sixteen students served as subjects, divided into two equal sections.

Three situations were used. The "alone" situation as used in the First Series was again employed—simultaneous work with identical signals (AS). But now a new "alone" situation was arranged in which each subject presented himself at the laboratory at his own individually appointed time, received his test materials from the experimenter with a reminder of his general instructions, and retired to a private room where his signals were given him by an automatic "interval timer" (modified alarm clock) in the setting and regulation of which he had been previously practiced, thus working at a different time from the other subjects (AD). For a third situation the co-working group (T) was again arranged, the signals being given sometimes by buzzer as in AS, sometimes by interval timer as in AD.

[3] For the conduct of this series of experiments the writer is indebted to Dr. Lee M. Brooks.

TABLE 2

SUMMER, 1929

Multiplication: Speed

	Highest	Second	Lowest
AD	2	3	10
AS	6	7	3
T	8	5	3

Multiplication: Accuracy

	Highest	Second	Lowest
AD	9	6	1
AS	4	9	3
T	4	2	10

Mixed Relations: Speed

	Highest	Second	Lowest
AD	2	4	10
AS	7	4	5
T	7	7	2

Mixed Relations: Accuracy

	Highest	Second	Lowest
AD	8	7	2
AS	6	3	7
T	2	6	7

Serial Associations: Speed

	Highest	Second	Lowest
AD	3	6	7
AS	3	4	9
T	10	6	0

CONSIDERING ONLY AD VS. AS

Multiplication: Speed

	Higher	Lower
AD	4	12
AS	12	4

Multiplication: Accuracy

	Higher	Lower
AD	10	6
AS	6	10

Mixed Relations: Speed

	Higher	Lower
AD	4	12
AS	12	4

Mixed Relations: Accuracy

	Higher	Lower
AD	9	6
AS	6	9

Serial Associations: Speed

	Higher	Lower
AD	9	7
AS	7	9

Results are presented in Table 2, figures being used with the same general signification as in Table 1. Upon inspection of the table it appears that speed is clearly greatest for the more individuals in the T situation so far as serial associations are concerned, but not clearly greater than in the AS situation in the other two tests; and that speed is slowest in the AD situation in the latter two tests. It further appears that accuracy in work is greatest, in the more cases, in the AD situation and is least in the T situation.

The middle position of the AS scores, as respects both speed and accuracy, fortifies our previous supposition that an "alone" situation in which the individual is working in the knowledge that others are working simultaneously with him, on exactly the same tasks, and with one central signal-control, lacks some of being a truly solitary situation and is likely to set up social attitudes in the individual.

To make more distinct the differences between the so-called "alone" situation just mentioned, and the "alone" situation from which the elements of simultaneity and identical central control

have been eliminated, comparisons were made of the scores made in the AD and AS situations only, and shown on the right-hand side of Table 2. The differences become clearer than when scores in the T situation were included in the rankings, inasmuch as ties between AD and T scores and ties between AS and T scores, resulting in split ranks, tended to obscure true differences between AD and AS scores.

General Discussion.—Our study bears upon three of the four part-problems concerning group effects on the individual stated in the Introduction.

As to whether the presence of quiet spectators or audience has influence, our results clearly point to a facilitating effect upon speed at the expense of accuracy.

On the question of the effect of the presence of co-workers, the data here do not clearly bear out the most usual findings of a facilitation of speed with a favorable or an unfavorable effect upon accuracy.

As to the effect of rivalry, the answer here returned is that this attitude does have an effect distinct from that of the mere presence of others, either as co-workers on the one hand, or as spectators on the other.

Further, it is shown that when working apparently in solitude the individual may have social attitudes set up in varying degrees; and it may be inferred that discrepancies in results by different investigators may be in part due to difference in the solitary situation provided.

Through all these problems run indications of the need for more and more *analytic* research. The rôle of negative adaptation to distractions; that of conditioning to incidental (social) stimuli; differences in the personal make-up of the group, such as prestige, age, degree of familiarity to the individual; differences in the subjects used; in the psychological functions measured—these are but a few.

BIBLIOGRAPHY

Allport, Floyd H. The Influence of the Group upon Association and Thought. *J. Exper. Psychol.*, 1920, 3, 159–182.

Allport, Floyd H. *Social Psychology.* Boston, 1924, Chapter XI.

Cason, Hulsey. Influence of Suggestion on Imagery in a Group Situation. *J. Abn. & Soc. Psychol.*, 1925, 20, 294–299.

Farnsworth, Paul R. Concerning So-called Group Effects. *J. Genet. Psychol.*, 1928, 35, 587–594.

Gates, Georgina Strickland. The Effect of an Audience upon Performance. *J. Abn. & Soc. Psychol.*, 1924, 18, 334–344.

Gates, Georgina S., and Rissland, L. Q. The Effect of Encouragement and of Discouragement upon Performance. *J. Educ. Psychol.*, 1923, 14, 21–26.

Hurlock, Elizabeth B. The Use of Group Rivalry as an Incentive. *J. Abn. & Soc. Psychol.*, 1927, 22, 278–290.

Laird, Donald A. Changes in Motor Control and Individual Variations under the Influence of "Razzing." *J. Exper. Psychol.*, 1923, 6, 236–246.

Mayer, August. Ueber Einzel- und Gesamtleistung des Schulkindes. *Arch. f. d. Ges. Psychol.*, 1903, 1, 276–416.

Moede, W. Einzel- und Gruppenarbeit. *Prakt. Psychol.*, 1920–21, 2, 71–81, 108–115. (Reference from Allport.)

Sengupta, N. N., and Sinha, C. P. N. Mental Work in Isolation and in Group. *Indian J. Psychol.*, 1926, 1, 106–110. (Abstract in *Psychol. Abstr.*, 1, No. 292.)

Travis, Lee Edward. The Effect of a Small Audience upon Eye-Hand Coordination. *J. Abn. & Soc. Psychol.*, 1925, 20, 142–146.

Travis, Lee Edward. The Influence of the Group upon the Stutterer's Speed in Free Association. *J. Abn. & Soc. Psychol.*, 1928, 23, 45–51.

Triplett, Norman. The Dynamogenic Factors in Pacemaking and Competition. *Amer. J. Psychol.*, 1897, 9, 507–532.

Weston, S. Burns, and English, Horace B. The Influence of the Group on Psychological Test Scores. *Amer. J. Psychol.*, 1926, 37, 600–601.

Whittemore, Irving C. The Influence of Competition on Performance: An Experimental Study. *J. Abn. & Soc. Psychol.*, 1924, 19, 236–253.

QUANTITATIVE METHODS OF INVESTIGATING HYPNOTIC SUGGESTION[1] *

PART I

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IN the preface to the fourth edition of his well known work on hypnosis[2] Moll expresses the opinion that little or nothing remains to be discovered in the field of hypnotic phenomena (Symptomatology). He says: "Very little has been added to our knowledge of these questions during the last few years, and *it would appear that this branch of hypnotic research is fairly exhausted,* though of course, it may one day happen that it will have to go through a searching revision which will prove instructive."[3] The history of science shows that similar views have been put forward from time to time in the various fields of scientific research, always to be disproven by subsequent events. Moll's pessimistic prediction most certainly will be no exception. It is one of the purposes of the present article to show that the possibilities of research in hypnotism not only are not exhausted but that, comparatively speaking, they have as yet scarcely been touched.

Perhaps the most effective way of establishing such a thesis as that just put forward, is to demonstrate the possibilities of fruitful research by concretely pointing them out. This it is proposed to do to the extent of outlining over a hundred typical experimental projects from this rich field.[4] It is hoped that this concrete exhibition, at once of our ignorance regarding the major hypnotic

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[1] These outlines are not in all cases the result of the unaided efforts of the author. They have been evolved in connection with an extensive cooperative research program carried on at the University of Wisconsin under his leadership. The outlines thus represent in many cases, the result of the combined suggestions and criticisms from a number of different persons. In most cases the identity of the individual contribution has been lost in the complex give and take of cooperative thinking. The author hereby expresses his sincere appreciation to all those earnest young people who have so loyally associated themselves with him in the attempt to establish hypnotism on a genuinely scientific basis.

* Manuscript received February, 1929.

[2] Moll, Albert. *Hypnotism.* Charles Scribner's Sons, New York, 1913.

[3] Italics ours.

[4] Outlines of forty somewhat analogous projects in waking suggestion have been given in a previous article: Quantitative Methods of Investigating Waking Suggestion, this JOURNAL, July, 1929.

phenomena and of its remedy, will ultimately bring about an increasing number of exact and carefully controlled scientific investigations of hypnotism.

It is scarcely an exaggeration to say that the present state of hypnotic knowledge is a scientific scandal. It will be recalled that Mesmer was a contemporary of Benjamin Franklin. During the period of something over a century and a half since Franklin's kite experiment (1752), electricity has developed into one of the most exact and quantitative sciences in existence. After approximately the same period (Mesmer propounded to the scientific world his views on animal magnetism in 1775), we find hypnotism for the most part still languishing in the hands of charlatans and mystery mongers. Except for a little notable work performed during the last decade, scarcely anything of scientific significance has been done for a century. During this period almost nothing has been accomplished save the more or less imperfect correction of experimental blunders committed by earlier workers.

It is not as if this remarkable backwardness in the development of hypnotism as a science had been due to lack of attention. Actually throughout this long period there has been continuous and widespread experimental activity in this field. The meager scientific results from all this really immense expenditure of human energy has resulted to a considerable extent from the workers wasting their time in mere dabbling. For the most part they contented themselves with repeating the classical experiments: inducing the trance, producing catalepsies, analgesias, post-hypnotic amnesias, and acts by post-hypnotic suggestion, but without significant variation from the procedures employed thousands of times before by previous experimenters. To a large extent this is true even today. There are signs, however, that this long period of sterility is rapidly drawing to a close. It is the hope of the author that the following suggestions of experimental procedures will aid in hastening the renaissance in hypnotic research which seems to be on its way.

Outlines of Experimental Projects and Procedures[5]

1. It is obvious to all who have had any experience in putting people into the hypnotic trance, that some persons are far more

[5] The reader should bear in mind that these outlines are not intended to be complete or final but merely suggestive, both as regards problems and methods of experimental solution. Many problems permit several modes of solution and many of the experimental methods described may be used with appropriate modifications to solve a variety of problems. Moreover, the limitations of space make it impossible to indicate in any detail or completeness the experimental safeguards necessary to be observed.

susceptible than others. Indeed, occasional individuals appear to be quite uninfluenced by the hypnotic technique. This last is particularly paradoxical since most psychological processes, such as the ability to perform the various types of learning, are found to some, though varying, degree in all normal individuals. Moreover, it is known that the quantitative distribution of most human abilities is strictly continuous, approaching the normal or Gaussian form. In this connection it becomes a matter of some interest to know the form of the distribution of susceptibility to the trance, particularly at that point of the scale where the minimal positive response passes over—apparently—into complete failure to respond.

For this problem to be solved in a satisfactory manner, a large homogeneous group of psychologically naïve subjects is needed. To secure a measure of susceptibility to the trance each subject should be subjected to a standard trance procedure by a single experimenter, lasting say twenty minutes. The measure of individual susceptibility should be the time required to induce a given standard of response. Of the various hypnotic phenomena available as a criterion for this purpose, probably the final closure of the lids is the best, because (1) lid closure is one of the most generally obtainable responses and (2) it can be observed and recorded most readily. The subject should be instructed very definitely not to close his lids voluntarily but only as the result of the suggestion.

The time required to induce final closure could be taken with the aid of a good stop-watch. Since the lids frequently close for a few seconds at a time before final closure takes place, a watch with a double stop attachment should be used, the one hand being stopped at each apparent closure and released again every time the lids open. The reading at the stop marking the final closure would then be the time required. In case it were desired to secure a record of the various temporary closures, this could be secured readily by using a kymograph provided with a time marker and a magnetic signal marker, the latter connected with a battery and a key. An assistant could watch the subject's eyes and press on the key during the period of each closure. The smoked-paper record would then show the detailed history of the closures.

A dot distribution could be constructed from the time scores made by the subject, each subject being represented by a dot. These results could then be subjected to various forms of statistical treatment to determine whether the subjects giving positive responses taken alone constitute a "normal" group, or whether

the individuals showing no response are required in order to complete the "slow" end of the presumably Gaussian distribution surface, and so on.

2. The differences in susceptibility to the trance noted under project No. 1 raise various questions: Are the differences in trance susceptibility due to an inherited organic positive or negative suggestibility? Or are they expressions of a more or less specialized set of socially conditioned habits? Are they due to differences in the personalities of the subjects? Are they significantly related to other aspects of the subjects' behavior, particularly such as may be sampled by psychological tests? The degree of correlation between trance susceptibility and various test scores should have considerable significance as to the essential nature of the particular process taken as the criterion of the trance.

Among the tests which it might be well to try for this purpose are one or two of the better verbal "intelligence" tests, the Kent-Rosanoff association test, an introversion-extroversion test and a considerable variety of tests presumably depending upon waking suggestibility and ideo-motor action, the stimulus of the latter being understood as originating outside the subject's organism. Some of these are: the tendency to move imitatively when watching some one making strong muscular effort; the tendency when the subject is standing with the eyes closed to sway forward when given quiet but continuous suggestions that he is doing so; the tendency, when holding a small bob suspended by a thread, to gradually make it swing in a direction indirectly suggested; the inability to unclasp the hands, to bend the arm, or to take the foot from the floor when told emphatically that it can not be done.

The classification of trance susceptibility in this case might be based on the number of subjects from a group like that of project No. 1, who report respectively (1) complete amnesia, (2) partial amnesia, and (3) no apparent amnesia, at the end of the standard 20-minute trance procedure. With this classification there might be computed either the bi-serial r, the tetrachoric correlation coefficient, or the coefficient by the four-fold-table method. If, on the other hand, the criterion of lid closure as described under project No. 1 should be employed, the ordinary Pearson correlation coefficient could be utilized.

3. If a criterion of trance susceptibility were used in project No. 2 which would permit of the computing of the Pearson correlation coefficient, the results from that investigation would make it possible to organize a test battery for estimating susceptibility to the trance, the several tests of which could be accurately

weighted by a multiple regression equation. The criterion as described under project No. 2 would also permit of the organization of a battery but its weighting would be very rough and crude. Such batteries as these, especially if the hypnotic score itself were included, might also be very useful in forecasting numerous vocational aptitudes involving suggestibility. It is possible that this trait or combination of traits is much more significant in various occupations, especially those primarily dealing with people, than is generally realized.

4. Pierre Janet has suggested that hypnotics are especially susceptible to fatigue. It would be an easy matter to test the truth of this assertion by testing on the ergograph a group of subjects like that suggested in projects No. 1 or No. 2 and then correlating the fatigability as shown by the ergograph with the degree of trance susceptibility. Appropriate corrections would, of course, need to be made to render comparable the rate of fatigue for people of different muscular equipment.

5. There is some reason to believe that individuals in an advanced state of general muscular fatigue have an increased susceptibility to the trance. Divide a large homogeneous group of naïve volunteers into two equally susceptible sections as nearly as this can be done by means of a battery of tests such as described under No. 3. Lacking the test battery, the subjects could be arranged according to chance. Let the individuals of one group take a long walk which will pretty thoroughly exhaust them. At once following this, subject them to the standard twenty-minute hypnotic technique. Subject the second or control group to the standard hypnotic technique with everything else constant except that they shall not be fatigued. The fatigued subjects should not know or suspect that fatigue is a part of the hypnotic experiment. Probably use trance susceptibility criteria of both projects No. 1 and No. 2. Compare the mean susceptibility to trance of the two groups and determine the statistical reliability of the difference found between the means.

6. Occasional observations suggest rather strongly that persons suffering from loss of sleep are especially susceptible to the trance. This problem could be solved by methods analogous to those described under No. 5. The loss of one night's sleep by the experimental group would be a convenient unit of privation to employ.

7. Certain drugs are said to increase suggestibility and to favor susceptibility to the trance. Among those worthy of investigation may be mentioned alcohol, chloral, ether, chloroform, and mor-

phine. Perhaps most promising of all is scopolamine. An experimental squad of subjects and a comparable control squad of subjects as described under No. 5 would be desirable. In addition it is imperative that a control dose, if possible indistinguishable by the subjects from the actual drug, should be administered to the control group.

It would be especially interesting to test the influence of various drugs upon subjects who had proven refractory to ordinary suggestion. Divide a group of such refractory subjects into two comparable squads and treat as described in the preceding paragraph.

8. It is quite evident to even casual observation that most persons, when about to submit to the hypnotic technique, are in a state of considerable emotional excitement. This may be easily seen, for example, in the beating of the arteries of the neck. This raises the question as to whether the presence of strong emotional excitement facilitates or retards the tendency to fall into the trance.

A large group of subjects such as described under No. 2 should have their emotional reactions recorded as described under No. 25 throughout the initial twenty-minute standard trance procedure. In this manner the mean and the range of intensity of the several emotional reactions should be determined respectively for the three divisions of subjects as regards susceptibility to the trance. A comparison of these means should at least show whether the excitement characteristic of persons about to go into the trance the first time is a favorable or an unfavorable symptom.

9. Subjects who fail to go into the trance often report later that they more or less deliberately resisted the suggestions. On the other hand, tales are sometimes told of traveling hypnotists who are able to hypnotize individuals who at the outset are aggressively defiant. Moreover, subjects responding positively in waking suggestion experiments often report having at first resisted. Some light might be thrown on this problem by securing systematic reports from the various subjects at the conclusion of experiments like Nos. 1, 2, and 8, as to whether they resisted. The percentage of subjects reporting resistance in the various susceptibility groups might indicate something as to the influence of resistance on susceptibility.

It would also be of great interest to see whether the resisting subjects showed more or less than average amounts of the emotional reactions investigated by No. 8.

Unfortunately verbal reports of the nature mentioned above are very easily influenced by various subsequent, and hence irrelevant, factors such as whether or not the subjects actually went into the

trance. Probably a much more promising method than that just described would accordingly be for a second experimenter to instruct half of the subjects in a set-up like No. 1 or No. 2, definitely to resist the suggestion. It would be preferable if the hypnotist should himself know nothing about this until after the experimental work should be finished. The mean susceptibility scores of the instructed and the uninstructed groups might easily furnish a useful index of the rôle of voluntary resistance in producing refractoriness to the hypnotic technique.

10. Since the time of Braid, one of the very common methods of inducing the trance is to ask the subject to look fixedly at some bright object held rather close to the eyes and somewhat above, in such a position that the latter are under a certain amount of muscular strain. This is ordinarily accompanied by specific verbal suggestions. Now it is known that verbal suggestions alone will induce the trance. The question arises as to what extent, if any, the optical fixation in itself contributes to inducing the trance.

The solution of this problem calls for three comparable squads of naïve subjects. With one group have S look fixedly at the bright object. These subjects should not know that the experiment has anything to do with hypnosis. Accordingly some fictitious but plausible explanation of the purpose of the experiment should be given. With the second group the verbal sleeping suggestion should be given without the optical fixation of the bright object. With the third group both fixation and verbal suggestion should be given as in the usual technique. In all cases the period should be twenty minutes. The criterion of trance susceptibility used in No. 1 and No. 2 could be employed. Compare the mean susceptibility of the three groups, and the differences between the means with the probable errors of the differences. If the differences between the means appear fairly large but are less than two and a half or three times the size of their probable errors, add continuously to the number of subjects in the respective squads until the P.E.'s become as small as desired.

11. From experiments carried out in his laboratory in Petrograd, Pavlov has come to the conclusion that sleep is a highly universal internal inhibition. Here we are concerned mainly with the fact that he has noted certain intermediate states between the waking and sleeping states which he believes to be of the same nature as the hypnotic trance. These experiments should be repeated with human subjects.

Set up a conditioned reflex in which the kneejerk is conditioned to the tone of a tuning fork of 256 d.v. and conditioned not to

respond to ten neighboring tones up the scale and ten down, such as 426, 160, 640, and so on. All stimuli and responses will be recorded automatically on smoked paper. After the conditioning and differential inhibition have been set up, try the following: Sound the 256 d.v. fork and record the extent of the kneejerk; now sound in succession at five-minute intervals the various neighboring tones in random order. If the dog results hold with humans, the lids should begin to droop after a few stimulations of these negatively conditioned tones. The degree of drooping of the lids might also be recorded by means of the method described under No. 19.

When the lids are closed to varying degrees, the subject should be tested in various ways for suggestibility, amnesia, etc. If amnesia develops, determine whether recall can be effected in a subsequent trance of the usual kind. It would also be of interest to know whether there is any correlation between susceptibility to this phenomenon and to the ordinary trance.

12. Whether Pavlov's theory turns out to have any truth or not, there is excellent reason to believe that the hypnotic trance is characterized by a great diminution of the spontaneous thinking activity. It is possible that resistance to suggestion consists in the subject continuously telling himself subvocally that he is not going into the trance, and by this self-stimulation counteracting the stimuli furnished by the experimenter. If this is true, it might be possible to prevent this type of resistance by otherwise engaging the speech apparatus in monotonous but irrelevant activity such as counting in a low tone. This could be tried out on a squad of refractory subjects, a control squad of the same type also being run.

13. Some persons seem to be much more successful in giving trance suggestions than others. Exactly what the factors determining this personal suggestive potency are and the range of variability among various persons is of importance. This should be determined with respect to age, sex, size of body, quality of voice, aggressiveness of manner, and so on. A matter of some interest is whether certain subjects are more susceptible to one type of experimenter and other subjects to another type of experimenter. This problem could be solved by methods analogous to that described for No. 8, this JOURNAL, p. 160, vol. XXIV.

14. How potent is the fact that a hypnotist has a reputation for being an expert in facilitating the induction into the trance? This problem could be solved by having two squads of naïve subjects. Instruct one squad that the hypnotist is world-famous for his

powers and the other that he is a crude amateur. Subjects from the respective squads will be tested for trance susceptibility in a random order. The hypnotist should not know of the plan of the experiment until it is completed.

15. Various procedures for facilitating the induction into the trance have been employed and advocated from time to time. The relative effectiveness of these various methods should be susceptible of experimental comparison by such methods as described under No. 10 above. Some of the alternative questions which thus present themselves are: (a) Is it advantageous to precede the formal giving of the trance suggestion by a description of the hypnotic behavior which the subject will show? (b) Is there any advantage in letting a new subject see some other person be put into the trance previous to attempting a first time? (c) Is it more effective in general to use an aggressive commanding manner or to employ a quiet, gentle, and insinuating manner? Do some personalities (possibly as revealed by suitable tests) respond better to one manner and some to the other? (d) Is it more effective to experiment on a subject by himself or to have a number of sympathetic persons present? (e) Is it better to have the subject stand or to sit reclining in a comfortable chair?

16. It has been observed repeatedly that subjects who show few or no signs of going into a trance, particularly after prolonged application of suggestion, often show marked effects and even fall into an amnesic trance spontaneously after the experimenter has discontinued his efforts and begun on a second subject in the presence of the first. The question arises as to how much of this apparent after-discharge is due to a genuine perseveration of suggestion and how much is due to the indirect action of the suggestion being administered to the second subject. It is well known, for example, that susceptible subjects frequently fall into a trance while observing hypnotic suggestions being given to another person.

The problem might be attacked in the following manner: A large group of naïve subjects who are known to be refractory should be divided into comparable groups. The individuals of one group, following the standard trance procedure in each case, would be left sitting quietly in a chair for twenty additional minutes while the experimenter talks uniformly about the weather, say, with a trained assistant in quiet monotonous tones. The individuals of the second squad would follow their standard trance suggestion by twenty additional minutes, during which they sit quietly the same as the first squad, only in this case the experi-

menter will give strong suggestions to an assistant trained to resist for some minutes but finally to yield. The tendency of the eyes to close in each case can be recorded mechanically on a kymograph by a second assistant who observes the subjects from a concealed position, perhaps by means of a laboratory telescope.

17. Verbal reports from certain subjects indicate that the phenomenon mentioned under No. 16 may be especially characteristic of subjects who deliberately resist the direct suggestions of the trance technique. A squad of subjects who have recently gone into an amnesic trance for the first time (to make sure that they are really hypnotically susceptible) may be instructed by a third person to resist the suggestions. Those who succeed will be left quietly in their chairs the same as the second group of No. 16 and their lid behavior recorded. If, now, they rather uniformly show tendencies to lid closure, it will raise some presumption that the phenomenon of No. 16 is in part, at least, a matter of primary resistance. If, in addition, verbal reports secured from those subjects of No. 16 show a conspicuously larger proportion of admitted resistance where S's fell into a spontaneous trance following the trance technique than where they did not, the presumption would be considerably strengthened.

18. It is a well known fact that if susceptible subjects, either through self-instruction or instruction by another, deliberately resist the suggestion of a hypnotist to perform a given act, the act will be much slower in appearing; it will usually be weaker and perhaps modified in character, or it may not appear at all. It is a question of some interest whether the conflict between the two tendencies takes place centrally, as Sherrington found with spinal dogs, or whether it takes place in part at least as a struggle between antagonistic muscles.

Some light might be thrown on this problem by making exact tracings of the behavior of the two dominant muscles in an antagonistic group, one of which should contract to execute the suggested movement. Rough results could be secured by taking mechanical tracings from the bulging or hardening of the respective muscles or muscle groups involved. More satisfactory results could be secured by recording the action currents from the respective muscles in question by means of the capillary electrometer or the Einthoven string galvanometer. Coupled with this should be an exact tracing of the gross behavior of the bodily part, the movement of which is being suggested. In this way it could be determined in any given case whether the failure of the part to react explicitly is due (a) to failure of innervation of the appro-

priate muscles, (b) too feeble innervation, or (c) a vigorous innervation of the appropriate muscles due to hetero-suggestion, but which is counterbalanced by an equally vigorous innervation of the antagonistic muscles, presumably by auto-suggestion.

19. We have characteristic curves which represent the progress of various psychological processes such as learning and forgetting. In this connection we may raise the question of the typical curve of the onset of the trance. Does it take place more rapidly at the beginning, the middle, or the end? Is there an initial period of latency and at the end an after-discharge, as seems to be the case in waking suggestion? Does this vary characteristically for the different stages of hypnotic training?

These problems are probably not susceptible of solution for the trance in general, but instead must be solved separately for the several major trance phenomena. As has been suggested more than once previously, the closure of the lids offers special advantages, chiefly because the several stages of their closure are not only open to observation but especially because their behavior may be recorded with precision. This may be effected quite easily by attaching a small piece of aluminum foil to the lid by means of a drop of glue. To the aluminum is attached a light thread which is led through small guides to a very light glass lever which will trace on smoked paper a faithful record of the lid's activities, enlarging three or four times. After two or three minutes the person no longer feels the attachment to his eye and will often ask if it has not come detached. Such a device would record the exact progress of the closure from beginning to end, thus giving the desired curve automatically.

20. The curve of recovery from the trance may be considered for the present purpose to begin at the point when the trance suggestions cease and to extend to a point at which trance phenomena can no longer be detected. In this latter case specific exception must be made of the influence of post-hypnotic suggestions on the one hand and of the relatively permanent increase in susceptibility to the trance which results from repeated hypnotization, on the other.

So far as the phenomenon of lid behavior goes, this problem may be investigated by securing lid tracings very much as in No. 19. The subjects in this case should be brought into a deep trance and then allowed to wake spontaneously. Casual observations would indicate that in the case of the trance the period of after-discharge or persistence of the influence of the suggestion, even where no special suggestion of persistence is made, is much longer than is the case with waking suggestion.

21. A second aspect of this problem, but one in which the lid technique is not adequate, is seen in the familiar case where the subject is told to wake at a signal such as the snapping of the finger. In such cases the subject's eyes usually open instantly, yet there is reason to believe that the subject is for some time thereafter by no means free of the trance. Perhaps the most striking indication of this is the fact that the subject will go into a trance so much more quickly at once following a trance than he will after a longer interval, as well as a generally heightened susceptibility to heterosuggestion immediately after seemingly completely waking from a trance.

This observation gives us the clue of the method of measurement upon the basis of which we shall plot our curve of diminution. Use as subjects persons who have been hypnotized so many times that they no longer show any increase in susceptibility from repetitions of the trance. Put them into the trance by a standard technique, and after a given period following eye closure wake them by a standard waking technique. After varying periods, repeat the trance technique and record the length of time required to produce eye closure, for example. Suggested times would be: 1 sec., 20 sec., 5 min., and 30 min. Only one test should be made following a given trance. It would be well to separate the trances by as much as a week.

A second technique for determining the curve of the diminution of suggestibility following the superficial "waking" from the trance would be to base it on the increasing time required to induce by means of suggestion a given amount of swaying forward while standing and apparently awake. The movements in this case could be recorded automatically by means of the special recorder for postural movements described in an earlier paper.[6] In this second case the subject should probably be put into the trance in a standing posture.

22. Subjects often themselves report, upon being questioned, that they are not fully awake even when they appear superficially to be so. It would be of some interest to secure reports of such internal observations and compare them with the objectively determined curves secured as described. At what point in the recovery to normal suggestibility does the subject regard himself as *fully* awake?

23. It is a well known fact already referred to (No. 20) that successive repetitions of the trance usually facilitate the induction

[6] *Op. cit.*

of the trance on a later occasion. The extent to which this is true and the shape of the practice or learning curve of the acquisition of this particular form of habit may readily be determined. Let the experimenter use a standard hypnotic technique. An assistant provided with a suitable stop watch (see No. 1) could note and record the time required to induce the trance on each occasion. Probably the best criterion here also would be the required time to induce lid closure. Separate curves should be plotted from distinct groups of subjects (a) in which the trances are given every day and (b) when given once per week, to reveal influence of spacing repetitions.

A second problem related to that just mentioned concerns the speed with which acts not necessarily associated with the trance, such as the falling forward of the head until the chin practically rests upon the chest, can be acquired after the ordinary trance is well established, as compared with setting it up at the very beginning. Curves based upon time required to induce a given amount of reaction could be plotted. Graphic tracings of the head movements themselves could be secured easily by the postural movement recording device.

24. No. 23 is concerned with what appears superficially to be a phase of habit formation. It is a matter of some interest to know whether the increased susceptibility to the trance acquired through repetition is, like ordinary habits, lost through disuse, and if so, the curve of its diminution. This should probably be investigated by means of several squads of subjects of tested comparability as to susceptibility to the trance, amount of trance training, and so on. The criterion in this case might be the rate of lid closure as in those projects previously sketched.

25. As pointed out in No. 8, there is usually considerable emotion present the first time a subject is exposed to the trance technique. There is reason to believe that the intensity of this emotional reaction diminishes with the successive repetitions of the trance. This latter process, if existent, would then be a process of adaptation or a kind of negative learning. It should be possible to measure the rate of the diminution of emotional reactions for successive trances and from these data to plot the curve with precision.

Among the emotional reactions which are promising for this purpose are:

I. Breathing, as recorded on smoked paper by means of a pneumograph. A number of different indices of emotional reaction which may be used are the following:

A. Change in the inspiration-expiration ratio.

B. Increase in the variability of the inspiration-expiration ratio.

C. Increase in the variability of the time consumed by individual inspiration-expiration cycles.

D. Increase in the variability of the depth of breathing.

E. Increase in the total up-and-down movement of the pneumograph per unit time.[7]

II. The galvanic conductivity of the skin, the so-called galvanic skin reflex. With the aid of an assistant and suitable apparatus, this may be recorded on smoked paper parallel with the pneumograph tracings.

A. The extent of rise in conductivity.

B. The time required to return to normal.

III. The pulse beat, as recorded on smoked paper by the Erlanger-Meek sphygmograph. The following reactions are worth investigation:

A. The fall in the amplitude of the pulse tracing.

B. The increase in variability in the height of the individual pulse beats.

C. The increase in the variability of the time consumed by the individual pulse beat. These latter, if necessary, may be measured by means of a microscope with a graduated scale in the eyepiece.

D. The general increase in the heart rate over the prehypnotic rate.

All of these reactions may be recorded simultaneously on a single piece of smoked paper. The subjects should first be thoroughly accustomed to the recording apparatus before anything is said about the trance. Then, each time a normal record should be taken preceding the trance. Trances should be repeated regularly, say once per week, until the emotional reactions have ceased to decline. Separate curves might be plotted from each of the eleven quantitative indices listed above.

26. As an important by-product from the investigation sketched under projects 8 and 25 may be mentioned the possibility of plotting a curve which would show the characteristic degree of the several emotional responses for the different stages of the trance: the period of anticipation, the period of latency after overt suggestion begins, periods when the subject reports being startled at feeling himself going in and as a result partially recovers spon-

[7] This is measured with precision by the linear oscillometer. This instrument is described in *J. Exp. Psych.*, 1929, Vol. XII, pp. 359–361.

taneously, the period when the deep trance is reached while resting quietly, the period of warning that he is about to be wakened, and finally the period of actual waking.

27. In current practice, post-hypnotic amnesia is probably the most characteristic symptom of hypnosis. As such it deserves especially full investigation.

Bramwell has quite rightly raised the question as to whether the post-hypnotic amnesia for trance events, which is such a common phenomenon of hypnotism, tends to be inherent in the trance state or whether it is, like most other trance phenomena, itself the result of suggestion either directly or in some obscurely indirect manner. If thoroughly naïve subjects, who had never heard of this aspect of suggestion, could be secured, this extremely important but difficult problem might yield to experimental attack. It should at least be possible to determine experimentally the proportion, if any, of subjects professing no knowledge of hypnotic phenomena who show the amnesia where no direct suggestion of any kind has been given. The subjects should be put into the trance, probably by the method in which the eyes are kept open. Use catalepsy, analgesia, and post-hypnotic suggestion as tests of the attainment of the trance. Ten minutes after the termination of the trance, have all subjects fill out in writing a skillfully prepared form containing adroit questions calculated to reveal any waking knowledge of the trance events without actually suggesting the events. Probably one of the most critical of the tests is whether S recalls the act carried out post-hypnotically, and if so, whether he recalls why he did it, *i.e.*, the giving of the post-hypnotic suggestion. The writer ventures the prediction that the percentage of spontaneous amnesia appearing under such circumstances will prove comparatively small.

28. It is a matter of common observation that many subjects who do not show spontaneous post-hypnotic amnesia develop it quite readily after it has been suggested. The question arises as to whether this suggested amnesia is the same phenomenon as the spontaneous form. One method of attacking this problem would be to compare the time required by the two types of amnesic subjects to relearn standard nonsense paired-associates memory material in the waking state which had just been learned in the trance state to two perfect reproductions, say. A further procedure would be to compare the time required to relearn the paired associates a *second* time twenty-four hours later. Perhaps the most promising method of detecting a qualitative difference between the two types of amnesia would be to compare the agreement between

the original-learning and the relearning difficulty of the individual paired associates by the method described under No. 36. In this connection it might be illuminating further to compare the types of amnesia with the performance, under comparable conditions, of subjects instructed to simulate an amnesia of about the same degree. Presumably the behavior of the group showing directly suggested amnesia would more closely resemble the simulation group.

29. It has been shown by Strickler that paired associates learned in the trance require approximately 50 per cent of the original learning time to relearn fifteen minutes later in the waking state. The question rises as to whether this amount of amnesia as measured by the relearning method is peculiar to the verbal type of memory material. An excellent comparison could be made by having subjects learn numerous stylus mazes to a given degree of perfection—say three successive perfect runs—and then relearn fifteen minutes later. Relearn a second time twenty-four hours later. Half of the original learning should be done in the waking state and half in the trance. Special precautions must be taken to protect the results from constant errors due to practice effects, differences in difficulty of the mazes, and so on.

30. Two very different things are popularly taken as evidence of memory. One is the reinstatement of a pattern of reaction previously performed or rehearsed by the subject, such as the execution of a tennis stroke learned last season. The second is exemplified by the verbal description of the stroke. In this latter case the action is in no remote sense like that of a reinstatement—one is mainly executed by the arm, the other by the tongue. Now the test for amnesia ordinarily made is of the second type—we ask the subject to report to us symbolically what he did (or experienced) during the trance. There is a little reason to suspect that this second phase of memory is more susceptible to the amnesia of the trance than the first.

A method of securing some light on the problem thus suggested would be to have two comparable squads of subjects learn a series of stylus mazes in the trance, one squad being directed to do the learning by systematically counting the alleys and otherwise aiding themselves in the learning by their symbolic processes, whereas the other squad would be instructed not to count or to aid themselves in any similar manner. Compare the time required by the respective squads to relearn in the waking state immediately after the trance learning.

A variant of the above method would be to have the same indi-

vidual learn one set of mazes one way and another set the other way, but otherwise as above. By this method special precautions should need to be taken to eliminate constant errors due to practice effects, differences in maze difficulty, and so on.

31. A characteristic form of memory which it seems possible may not be subject to the usual amnesia is the generalized skill which subjects develop through practice. Thus a subject who learns a large number of series of nonsense paired associates will usually learn the later series in less than half the time required to learn the earlier ones. Now most good hypnotic subjects will show by the test of recall a nearly complete post-hypnotic amnesia for the material thus learned. Will there also be a similar confinement of the increased skill or facility in learning to the trance where it was acquired, or will this function equally or in part in subsequent learning done in the waking state? The basic method of solution would be to give an initial test of the activity in question in the waking state, then give a fairly extended period of memorizing training in the trance, which would be followed by a second testing period in the waking state. If there is no transfer from trance to waking, then the practice curve of the final waking test period will be a simple continuation or extension of the practice curve begun by the preliminary practice period. If, on the other hand, there is complete transfer of acquired skill from the trance to the waking state, the curve of the final testing period will be continuous with the trance practice curve. Almost any other activity showing marked practice effects, such as continuous addition, speed in tapping, cancelling A's, and so on, could be used for this purpose quite as well as the rote learning.

32. That hypnosis should produce a genuine post-hypnotic amnesia not due to suggestion in any ordinary sense is rendered fairly probable by the fact that genuine amnesias appear to result from emotional shocks, blows on the head, and other traumas of a similar type. But just why a trance *per se* should produce an amnesia is something of a mystery. One is tempted to invoke the principle of redintegration as an explanatory principle. Some experiments seem to show, for example, that material learned in one experimental sitting is relearned with greater difficulty in a new sitting than it is in the original one. The only difference in the two cases of learning just cited would appear to be in the incidental parts of the stimulus patterns furnished by the surroundings. In the case of the waking and trance states, one is tempted to wonder whether the *internal* component of the stimulus pattern is sufficiently different in the two conditions to interfere with

recall. Unfortunately for this conjecture, if such a factor were operative, it should present as much resistance to going from the normal state to the trance as from the trance to the normal. While casual observation does not furnish much support for such an expectation, the theoretical considerations are of sufficient weight to make it desirable that the possibility of a real, though moderate, amount of amnesia from the normal state to the trance, should be investigated. This could be done by reversing Strickler's procedure, learning material in the waking state and after an hour testing half the series for recall in the trance state and a comparable half in the waking state. The principle of redintegration would lead us to expect a less perfect recall in the trance state.

33. One of the most remarkable things about amnesias in general and post-hypnotic amnesias in particular is the ease with which they may be made to disappear without any relearning. Subjects who show complete post-hypnotic amnesia as tested by recall *seem* to remember trance events perfectly in the following waking state if the hypnotist will merely tell them before waking that they will remember everything. Certain *a priori* consideration, however, leads one to suspect that careful measurement might reveal a substantial residue of amnesia after it has supposedly been removed by suggestion. For example, it is often impossible, even in the waking state, at once to remove a suggestion that a subject's fingers can not be unclasped, by giving a counter suggestion. Heterosuggestion is often unable to remove psychotic symptoms which are presumably due to some form of autosuggestion; and when immediately effective, the influence of the curative suggestion is too often transitory. This problem might easily be investigated by learning standard paired associates in the trance, then test for recall immediately in the waking state after having suggested perfect post-hypnotic memory. Control series would be run where the subject is tested in the trance state after a similar interval. If the amnesia is not entirely banished, there should be a larger score of failures to recall in the waking state than in the trance.

A second form of this experiment, which might easily yield quite different results, would be to compare the two after twenty-four hours.

34. It is a matter of considerable importance in the understanding of post-hypnotic amnesia to know whether its degree is to any extent dependent upon the strength of the associative tendencies themselves. This problem may be approached by having subjects learn in the trance series of comparable nonsense paired associates

to one perfect recitation. Have other series overlearned to the extent of twice the repetitions necessary for one perfect recitation and still other series three times overlearned. In all cases test for recall in the waking state immediately after the conclusion of the original learning and then relearn. If post-hypnotic amnesia is a function of the strength of the associative tendencies, there should be less amnesia with each increase in the thoroughness of the original learning. If not, then the indication would be that post-hypnotic amnesia is almost purely an inhibitory phenomenon.

35. A further question bearing on the essential nature of post-hypnotic amnesia is whether it combines in a summative manner with ordinary forgetting. Suppose a subject shows 50 per cent post-hypnotic amnesia at once after waking, for barely learned nonsense series. Suppose further that time enough elapses so that he would show 25 per cent loss if tested in a subsequent trance. Will the subject at this point show a waking loss of 75 per cent (the sum of the 25 per cent and the 50 per cent) or will he still show only the 50 per cent due to the amnesia? What will be the waking score when the true forgetting loss alone reaches 50 per cent? This problem may be solved by methods analogous to those already described. If post-hypnotic amnesia is purely an inhibitory phenomenon, we should not expect it to combine in a summative manner with the results of ordinary forgetting.

36. The various items of nonsense material as they appear in the experimental series present markedly different degrees of difficulty for the learning process. The same is true of the several *culs de sac* of a stylus maze. And on relearning after a period of forgetting, those points which caused most difficulty in the original learning series are very apt again to cause most difficulty. In other words, there is quite a high correlation between the original learning and the relearning series as regards the difficulty presented by the several elements composing the series. This is as should be expected because in the original learning the difficult parts are only just barely learned, whereas the easier parts are considerably overlearned. During the period of forgetting the barely learned parts naturally sink below the threshold of recall more readily and so require more reinforcement. But in the case of post-hypnotic amnesia as tested directly after thorough trance learning, all of the associative tendencies are present in sufficient strength to evoke recall if the test should be made in the trance state. The question arises as to whether the evident inhibition of these tendencies in the waking state acts as a kind of flat load placed on the associative connections (as is evidently the case with the true for-

getting process) pressing each individual associative process backward toward its threshold approximately an equal distance from its true trance level; or whether it is merely a capricious interference, singling out certain segments for inhibition without much or any regard for its true associative strength; or lastly, whether it is simply a leveling tendency, reducing all the associative connections to an approximate equality of impotence.

This problem might be investigated by using numerous series, each of twenty paired nonsense associates. Learn in the trance to four perfect recitations. Then relearn half the series at once in the waking state, and the other half in the trance state, the latter after the lapse of enough time to require approximately the same amount of relearning as that produced by post-hypnotic amnesia. Have a similar squad of hypnotically susceptible subjects learn the same material in the waking states and at once *pretend* to relearn half of it in the same state and relearn the other half after the lapse of enough time to require about the same amount of true relearning. For each series learned by each subject compute the correlation between the number of promptings on the corresponding paired associates for the original learning and for the relearning. N of the correlation formula would be twenty or the number of paired associates in the series. There will thus be one coefficient for each series learned. If either the second or third possibility suggested above should hold true, we would expect that the central tendency of the correlation coefficients for the amnesic relearning should hover around zero. If, on the other hand, the first possibility proves true, the correlations should be positive and comparatively high, comparable with those from true forgetting. Lastly, if the amnesic relearnings should show consistently high correlations, and the simulated amnesic relearnings should run consistently low, we should have a precise and objective method for detecting simulation.

37. A further means of examining the nature of post-hypnotic amnesia would be to take detailed records of the emotional reactions (see No. 25) during the learning process. There is reason to believe that if the stimuli were not presented in too rapid succession, fairly characteristic emotional reactions would be called out by certain parts of each series, and that these would tend to reappear on relearning. It would be illuminating to know whether these emotional reactions escape the usual post-hypnotic amnesia as tested by immediate relearning in the waking state, and if so, to what extent as compared with a suitable control series. This would be shown for any given type of emotional reaction by corre-

lating the magnitude of its manifestation at the several parts of each learning series with that at the corresponding points in the relearning of the same series.

38. Another question bearing on the essential nature of post-hypnotic amnesia relates to whether it is an inhibition which is fixed in some sense at the time of learning (as would be the case if it were a simple redintegrative phenomenon) or whether it is a more shallow process operating according to the suggestion which chances to be operating at the time of relearning. If the latter be the case, amnesia might be shifted to material really learned in the waking state, provided time enough could elapse so that the subject would forget which particular series, out of a large number, were learned in the respective states. Control series should be run where the confusion mentioned above would not enter. In case the true amnesia should prove consistently to be more deeply seated, as suggested by the first hypothesis, the experiment might lead to a useful method of detecting simulation. Presumably simulation would follow the second rule, though this would need to be determined experimentally by running a squad of simulators.

39. It has long been known that subjects usually show an amnesia for acts carried out as a result of post-hypnotic suggestion if tested shortly after. The question arises as to the profundity of this amnesia as compared with the post-hypnotic amnesia of the same individual. This problem might be investigated by having subjects directed in the trance to open an experimental book specially provided for the purpose and to memorize some paired associates of a series shown on a certain page during a four-minute period. Half the series should be learned in trances and half by post-hypnotic suggestions, the latter five minutes after the termination of the trance. In order to avoid the complications of retroactive inhibition, only one type of learning should be attempted at any given séance. The beginning and end of the learning should be indicated to the subject by appropriate signals. In the case of the trance learning, subject should be wakened at once after the learning. The amount of retention in both series should be tested after fifteen minutes, one hour, and one day, using separate series for each time interval.

40. Pavlov states that he encountered quite constantly in his experiments on dogs a state intermediate between sleep and waking. In its extreme form the state is said to be characterizes by the suppression of conditioned reflexes, the dog even failing to eat the offered meat. In less extreme cases the food may be neglected

(a failure of a "natural" conditioned reflex to respond) though the saliva may flow, but in diminished quantity, at the presentation of an artificially conditioned stimulus such as a buzzer. If the state which Pavlov considers hypnotic in his dogs is really the same in essence as that called hypnosis in man (as Pavlov evidently believes),[8] then we should expect a corresponding disappearance and diminution. of human conditioned reflexes when tested in a true trance state. To test Pavlov's theory it will accordingly be necessary only to set up in a number of hypnotically susceptible subjects, in the *waking* state, a considerable variety of conditioned reflexes, the strength of which should be measured both in the waking and the trance states. If no disappearances and no particular diminutions take place in the trance, a formidable presumption will be created in favor of the view that Pavlov's phenomena are not particularly related to the hypnotic trance.

41. There is reason to believe that in the trance the spontaneous thinking (symbolic-verbal) processes are largely in abeyance. Evidence of value might be secured, throwing at least indirect light on the matter, by comparing the ease of setting up the various conditioned reflexes in the trance and normal state when (a) S is counting subvocally, (b) adding mentally continuously, (c) gripping a dynamometer, (d) while in a voluntary tension of all the muscles of the body, and (e) while relaxed as profoundly as possible.

42. Still further evidence concerning the nature of post-hypnotic amnesia may be furnished by determining whether conditioned reflexes set up in the trance will function in the following waking state. In this, separate comparisons should be made for reactions (a) which are voluntary (like the flexion finger reflex), (b) which are semi-voluntary (like breathing and winking), and (c) which are non-voluntary (such as the galvanic skin reflex, heart action, etc.).

43. If it should prove possible to set up genuine delayed and trace conditioned reflexes in man, their use might offer an interesting additional means of exploring the mechanism of post-hypnotic amnesia. Set up a trace conditioned reflex in the trance in which the response takes place five minutes after the stimulus. Administer the stimulus, then wake the subject and observe whether the response follows in the waking state, and if so, any modifications which are characteristic as to time of appearance, intensity of reaction, and so on. Run suitable control series.

[8] Pavlov, I. P. *Conditioned Reflexes.* Pp. 265, 267, 404ff.

44. It is a well known fact that with men as well as dogs, if a conditioned reflex is used without reinforcement a number of times, experimental extinction will take place so that the stimulus will no longer evoke the response. This fact offers still another means of exploring the mysteries of post-hypnotic amnesia. Set up in the waking state a strong conditioned reflex to the kneejerk or some emotional reaction, say, and then bring it to an advanced state of experimental extinction in the trance, well below zero. At once wake the subject and when fully awake apply the stimulus and see whether this inhibitory habit obeys the ordinary law of post-hypnotic amnesia or whether it escapes the amnesic influence and inhibits the reflex. Several other forms of negative habits have been elaborated by the reflexologists, such as differential inhibition and conditioned inhibition, which should prove useful in this connection.

45. Set up a strong conditioned reflex in the waking state of a bell to the kneejerk. In the trance set up a strong homogeneous conditioned reflex in which a red flash evokes the kneejerk. Then present both stimuli together (a) in the trance state and (b) in the waking state. If there is no interference by post-hypnotic amnesia, responses in each case should be stronger than that evoked by either stimulus alone. But if post-hypnotic amnesia is operating the response to the combined stimulus in the waking state should be perceptibly weaker than that in the trance.

A negative variant of this experiment would be to bring the trance component of the above homogeneous conditioned reflex considerably below zero by means of experimental extinction. Then present both stimuli together as indicated above both in the trance and the waking states. If post-hypnotic amnesia is not operating in this field, the response in both cases should be zero or very small, but if it is operating, then the response in the waking state should be larger than in the trance state.

46. It has long been known that if a given learning activity is followed by another, particularly if the second is of the same type of material, the subsequent recall of the first is diminished. This is known as retroactive inhibition. The question arises as to whether material learned in the waking state, followed by learning similar material in the trance state, will be recalled any worse than if it were followed merely by a quiet sleeping trance of the same duration. Run a second (control) series in which the original learning is followed by learning done in the waking state. If post-hypnotic amnesia operates on the mechanism of retroactive inhibition, there should be no difference between recall where waking

learning is followed by the learning trance from that when followed by the quiet trance; but both should show a markedly better recall than where followed by waking learning. If, on the other hand, post-hypnotic amnesia does not operate in this case, recall where waking learning is followed by quiet trance should be best and where followed by trance learning should be equal to where followed by waking learning. If, however, post-hypnotic amnesia is partially operating, as seems most likely, the recall where normal learning is followed by trance learning will be intermediate between where followed by quiet trance and by waking learning.

AN ANNOYANCE TEST AND SOME RESEARCH PROBLEMS

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THE study that we made of annoyances, aversions, and irritations included an examination of the situations or stimuli which evoke these unpleasant feelings, an investigation of the way the stimuli are related to the affective experiences, how these associations are modified by social conditions, and an analysis of some of the more specific relations to the fields of genetic, social, and abnormal psychology.[1] Some of these annoyances are strong enough to be characterized as anger, several are matters of disgust, and a few include an element of fear. The majority have the desirable qualities of concreteness and objectivity, and a statement or description of them is easily understood by the average person.

The first step in this study consisted in making a large collection of annoyances from all available sources. These annoyances were then classified and counted, and 507 statements of annoyances were derived from this original material. We obtained a quantitative measure of the relative strength of the individual annoyances for the two sexes and for people of different ages. Printed statements of the annoyances were submitted to the subjects, and they indicated the degree of annoyance which they usually experienced in each of the situations described. A total of 625 different subjects graded the 239 annoyances in the first list in the spring of 1927, and 378 similar subjects graded the remaining 268 annoyances in the spring of 1928 under almost identical conditions. The subjects were of all ages between ten and ninety years.

Mean and average scores were calculated for each of the 507 annoyances; and each of these scores indicates the degree of annoyance for a group of people when the annoying stimulus occurs, and not the frequency of occurrence of the annoyance in every-day life. These scores were calculated for the two sexes and for each of the four age groups, 10–25 years, 25–40, 40–60, and 60–90. They range from a minimum score of *0* to a maximum score of *30*.

[1] H. Cason, Common Annoyances: a Psychological Study of Every-day Aversions and Irritations, *Psychological Monographs*, 1930, **40**, No. 182, pp. 218.

Comparisons were made between the mean and average annoyance scores of several groups of subjects, on the one hand, and the subjects' sex, height, weight, physical health, formal education, occupation, whether they were married or unmarried, etc., on the other.

We have brought together several principles of explanation which contribute to the understanding of the annoying situations, and with the assistance of a large number of additional subjects have made a detailed study of many of the most important annoyances. The subjects made a record of their more reliable observations on the origin of the annoyances, the psychological and social nature of the annoyances, why the things or situations in question were annoying, what they were associated with or reminded them of, and whether there were any conditioning or limiting factors.

On the basis of our results and experience in this study, we have constructed the Annoyance Test which is printed on the following pages, and which is published by C. H. Stoelting Co., Chicago. In the latter portion of the present paper we have outlined several problems for further research on this subject of common annoyances.

Annoyance Test

You are asked to coöperate in this study of annoyances, aversions, and irritations in the belief that the information which you can furnish will contribute materially to our knowledge of the important subject of feelings and emotions.

Please give in the spaces below all of the information which may be required by the experimenter:

1.....	6.....
2.....	7.....
3.....	8.....
4.....	9.....
5.....	10.....

Directions

The statements on the following pages describe things and situations which are annoying to a large number of people. Each statement stands by itself and should be interpreted literally. Examine some of these statements now for a few minutes and note their general nature.

When ready to proceed, read each of the statements carefully, one at a time. If you have been in the situation described or

have been exposed to the thing mentioned, during the past three or four years, estimate carefully the degree of annoyance, if any, which you experienced at that time. Use the following scale in grading each of these things or situations:

3—Extremely annoying
2—Moderately annoying
1—Slightly annoying
0—Not annoying
X—Have not been in the situation

If the situation or thing described was moderately annoying, write the number *2* in the parenthesis just to the left of the statement. If the situation was not annoying, put a *0* in the parenthesis. If you have not been in the situation during the past three or four years, mark the statement with an *X*; and so on. Mark each of the statements with either *3*, *2*, *1*, *0*, or *X*. Do not skip any of the statements.

In case the degree of annoyance for a particular item has varied considerably in different situations, or in the same situation at different times, you are asked to give the statement a single grade which will represent the most average, general, customary, or representative degree of annoyance. If, for example, the thing has been "Extremely annoying" (a grade of *3*) half of the time, and "Slightly annoying" (a grade of *1*) the other half of the time, the statement should be given a grade of *2*. The figure *2* has the statistical value that is desired.

Do not hurry. Take plenty of time. Read each statement slowly and very carefully. Recall deliberately the annoyance, if any, which you have experienced in the situation described. Grade each statement as accurately and as impartially as possible. Disregard the known, assumed, or supposedly proper degree of annoyance of other people. Grade each statement solely on the basis of your own past experience. Be as frank and as accurate as possible. Your answers will be confidential.

3—Extremely annoying
2—Moderately annoying
1—Slightly annoying
0—Not annoying
X—Have not been in the situation

3—Extremely annoying
2—Moderately annoying
1—Slightly annoying
0—Not annoying
X—Have not been in the situation

3—Extremely annoying
2—Moderately annoying
1—Slightly annoying
0—Not annoying
X—Have not been in the situation

3—Extremely annoying
2—Moderately annoying
1—Slightly annoying
0—Not annoying
X—Have not been in the situation

3—Extremely annoying *0—Not annoying*
2—Moderately annoying *X—Have not been in the situation*
1—Slightly annoying

( ) 1. A person behaving in an affected manner.
( ) 2. A person with a gushing manner.
( ) 3. A person losing his temper.
( ) 4. A person habitually arguing.
( ) 5. A person in an automobile I am driving telling me how to drive.
( ) 6. To see a person who is driving an automobile taking unnecessary chances.
( ) 7. To see a boisterous person attracting attention to himself in public.
( ) 8. To hear a person talking in an unnecessarily loud voice.
( ) 9. A person continually trying to borrow some of my things.
( ) 10. To hear a person chewing gum loudly.
( ) 11. A child not obeying his father or mother.
( ) 12. A mother continually correcting her child in public.
( ) 13. To see a person's nose running.
( ) 14. To see a person blow his nose without using a handkerchief.
( ) 15. A person not covering his mouth when he coughs or sneezes.
( ) 16. A person coughing in my face.
( ) 17. To see a person picking his nose.
( ) 18. To hear a person snuffing as if he has a cold.
( ) 19. A person telling me to do something when I am just about to do it.
( ) 20. A person giving me a good deal of advice when I have not asked him for it.
( ) 21. A person speaking to me in a dictatorial manner.
( ) 22. To hear one person nagging another person.
( ) 23. A person continually criticizing something.
( ) 24. A person saying "I told you so" to me, when something unpleasant has happened.
( ) 25. A person behaving as if he doubts what I have said.
( ) 26. To hear a good deal of idle gossip.
( ) 27. To be laughed at.
( ) 28. A person being sarcastic.
( ) 29. To see suggestive dancing at a social dance.
( ) 30. A person belching.
( ) 31. A young person showing disrespect for a much older person.
( ) 32. To hear a person drinking noisily.
( ) 33. To see a person putting a great deal of food into his mouth at one time.
( ) 34. To see a person chewing food with his mouth open.
( ) 35. To hear a person eating noisily.
( ) 36. A salesman trying to force me to buy something.
( ) 37. To be with a person who behaves as if he feels very superior.
( ) 38. A person with an aggressive manner.
( ) 39. A person crowding in front of me instead of waiting his turn when I am waiting in line.
( ) 40. A person bragging about himself.
( ) 41. To know that a person is staring at me.
(X) 42. A clerk in a store calling me endearing names.
( ) 43. A person putting his hands on me unnecessarily.
( ) 44. A person being a poor loser in a game.
( ) 45. A person cheating in a game.
( ) 46. A person correcting my mis-plays in a card game.
( ) 47. A person giving me a very weak hand-shake.
( ) 48. To see a woman applying cosmetics in public.
( ) 49. To see a person cleaning his finger-nails in public.
( ) 50. To see a person picking his teeth.
( ) 51. To see a person removing food from his teeth and gums by means of his tongue or lips.
( ) 52. A person continually wearing an ill-humored expression on his face.
( ) 53. A person continually talking about his illnesses.
( ) 54. To hear a person relating the details of his operation.
( ) 55. A person continually giving excuses for his behavior.
( ) 56. A person telling petty lies.
( ) 57. A person being inquisitive about my personal affairs.

( ) 58. A person asking me unnecessary questions.
( ) 59. To see a woman drinking liquor.
( ) 60. To see an intoxicated man.
( ) 61. To see an intoxicated woman.
( ) 62. A person continually trying to be funny.
( ) 63. A person laughing a great deal at his own jokes.
( ) 64. To hear a person make bad grammatical errors.
( ) 65. A person using a great deal of slang.
( ) 66. To have to get off the sidewalk to pass some people who are taking up all of the room.
( ) 67. To walk on ice-covered, slippery sidewalks.
( ) 68. To see a man remain seated in a street car while a woman stands.
( ) 69. An effeminate man.
( ) 70. A mannish woman.
( ) 71. To see a musician or signer making affected and unnecessary movements while he is performing.
( ) 72. To hear a person talking during a musical number.
( ) 73. To hear several discords in music.
( ) 74. To hear a person in the audience humming the tune during a musical number.
( ) 75. A person biting his finger-nails.
( ) 76. To see a toothpick sticking out of a person's mouth.
( ) 77. To see a person picking at a sore.
( ) 78. To hear a person sucking his teeth.
( ) 79. To just miss a street car.
( ) 80. A person in a street car not giving me as much space as he reasonably could.
( ) 81. To hear the rustling of paper in a theater during the performance.
( ) 82. To hear a person talking during a moving picture performance.
( ) 83. To be pushed when in a crowd.
( ) 84. A person looking over my shoulder and reading the book or newspaper I am reading.
( ) 85. A person looking over my shoulder at what I am writing.
( ) 86. To hear people talking to each other when I am trying to read or study.
( ) 87. A person talking to me when I am writing.
( ) 88. To hear a person criticizing my religion.
( ) 89. To hear whispering during a church service.
( ) 90. Orthodox, dogmatic views on religion.
( ) 91. A goody-goody person.
( ) 92. A religious hypocrite.
( ) 93. To hear a man swear.
( ) 94. To hear a woman swear.
( ) 95. To hear a person snoring.
( ) 96. To hear a person who is sitting near me in the audience talking during a lecture.
( ) 97. A public speaker talking in a halting manner.
( ) 98. To be with a person who behaves as if he feels very inferior.
( ) 99. To be with a very touchy person.
( ) 100. To see a woman fondling a lap-dog.
( ) 101. A person hinting at a sex subject and using words or expressions that have a double meaning.
( ) 102. To be spoken to familiarly in a public place by a person of the opposite sex whom I do not know.
( ) 103. To see over-affectionate demonstrations between girl friends.
( ) 104. To be in the company of a man who has the reputation of being slightly immoral.
( ) 105. To be in the company of a woman who has the reputation of being slightly immoral.
( ) 106. The jealous behavior of a man.
( ) 107. The jealous behavior of a woman.
( ) 108. To hear a joke or story on a sex subject when in a group of people.
( ) 109. A man continually referring to his women friends.
( ) 110. A woman continually referring to her men friends.
( ) 111. To have to kiss a relative when I do not want to.

( ) 112. An acquaintance of the opposite sex trying to kiss or pet me.
( ) 113. To see public love-making.
( ) 114. To hear a mosquito near me when I am trying to go to sleep.
( ) 115. To hear cats fighting when I am trying to go to sleep.
( ) 116. To hear a dog barking when I am trying to go to sleep.
( ) 117. An acquaintance snubbing me or not paying any attention to me.
( ) 118. A person talking when he has a large amount of saliva in his mouth.
( ) 119. To hear a grown person talking baby talk.
( ) 120. A person in a public place discussing his private affairs so loudly that he is heard by those near-by.
( ) 121. A person monopolizing the conversation.
( ) 122. A person talking a great deal and not saying anything very important.
( ) 123. A person in conversation with me not paying attention to what I am saying.
( ) 124. A person asking me to repeat when he has not been paying attention to what I have just said.
( ) 125. To listen to a person who is talking in a halting manner and continually saying "er-er," "and-er," etc.
( ) 126. A person interrupting me when I am talking.
( ) 127. A person talking when he has a good deal of food in his mouth.
( ) 128. A person in conversation with me arousing my curiosity about something and then refusing to tell me about it.
( ) 129. To hear a person talking in a shrill voice.
( ) 130. People whispering to each other in company.
( ) 131. To see a man spit in public.
( ) 132. To see a woman spit in public.
( ) 133. To see a man spit tobacco juice.
( ) 134. To see a person at the table pour out his tea or coffee into the saucer and drink it from the saucer.
( ) 135. To see a person at the table spitting out food.
( ) 136. A child who has very poor table manners eating at the table with me.
( ) 137. A person who is eating at the table with me taking the best piece of food when the dish is passed.
( ) 138. To see a person at the table lower his head very close to the plate while he eats.
( ) 139. A person who is eating at the table criticizing the food.
( ) 140. A hostess repeatedly urging me to take some food that I do not want.
( ) 141. To see or hear an animal being cruelly treated by a person.
( ) 142. To see or hear a child being harshly treated by an older person.
( ) 143. To be disconnected while talking over the telephone.
( ) 144. A man chewing tobacco.
( ) 145. To see a person who is smoking flick ashes on the floor.
( ) 146. To see a woman smoking a cigarette in public.
( ) 147. To have to wait for traffic signals to change when I am in a hurry.
( ) 148. A member of the family being careless about coming to meals on time.
( ) 149. To have to wait for a person who is late for an engagement.
( ) 150. Not being waited on promptly in a store.
( ) 151. A person continually complaining about something.
( ) 152. Cockroaches.
( ) 153. Flies.
( ) 154. Mice.
( ) 155. The sight of a snake.
( ) 156. To hear the continual blowing of an automobile horn.
( ) 157. To see poorly kept grounds around a house.
( ) 158. To see colors that clash.
( ) 159. To see an untidy room.
( ) 160. To find some dirt in food that I am eating.
( ) 161. To find a hair in food that I am eating.
( ) 162. The odor of garbage.
( ) 163. To see dirty table linen on the table.
( ) 164. To use a drinking glass that is dirty or clouded.
( ) 165. A dirty wash-basin.
( ) 166. A dirty bathtub.

( ) 167. To see hair which has been left in the comb.
( ) 168. To see unwashed dishes.
( ) 169. To hear static on the radio.
( ) 170. A dirty bed.
( ) 171. To hear the prolonged ringing of a telephone.
( ) 172. To see stains of tobacco juice on the cuspidor, floor, or wall, etc.
( ) 173. The stale odor of tobacco in the room of a private home.
(X) 174. To be in a poorly ventilated room.
( ) 175. To hear water dripping from a faucet.
( ) 176. To hear a window rattling.
(X) 177. To see a woman who should wear a brassiere going without one.
(X) 178. To see a woman who should wear a corset going without one.
( ) 179. To see lack of neatness in dress.
( ) 180. To see a person wearing dirty clothes.
( ) 181. To see a person using a dirty handkerchief.
( ) 182. To have a hole in my stocking or sock.
( ) 183. To see twisted or wrinkled stockings on a woman.
( ) 184. To see a person wearing very cheap jewelry.
(X) 185. To see a woman wearing an excessive amount of jewelry.
(X) 186. To see a woman wearing a kimono around in the house.
( ) 187. To see dirty clothes lying around the room.
( ) 188. To see a person wearing shoes with run-down heels.
( ) 189. To see dandruff on the coat a man is wearing.
( ) 190. To see blackheads on a person's face.
( ) 191. The odor of a bad breath.
( ) 192. The odor of onions on a person's breath.
( ) 193. To see excessive cosmetics on a woman.
( ) 194. The oily appearance of the skin of a person's face.
( ) 195. To see a dirty child.
( ) 196. To see the dirty ears of a person.
( ) 197. To see the dirty face of a person.
( ) 198. To see the dirty hands of a person.
( ) 199. To see the dirty neck of a person.
( ) 200. To see food on a person's face near his mouth.
( ) 201. To see dirty finger-nails.
( ) 202. To see very short finger-nails that have been bitten.
( ) 203. Noticeable hair under a woman's arm.
( ) 204. To see a man in need of a shave.
( ) 205. Noticeable hair on a woman's face.
( ) 206. To see a woman's hair that has been dyed.
( ) 207. To see a man in need of a hair-cut.
( ) 208. The odor of liquor on a person's breath.
( ) 209. The odorous condition of another person's body.
( ) 210. The odor of dirty feet.
( ) 211. The odor of perspiration from another person.
( ) 212. A strong odor of perfume from a woman.
( ) 213. To see the dirty teeth of a person.
( ) 214. To see stains of tobacco juice around a man's mouth.
( ) 215. To see pimples on a person's face.
( ) 216. To see the decayed teeth of a person.
( ) 217. To see or hear the obviously false teeth of a person.

An Annoyance Test. The directions which were used by our subjects in grading the 1927 and 1928 Annoyance Rating Blanks have been slightly modified in the present Annoyance Test. A total of 217 annoyances are included in this test, and these items have been selected from our material partly by the same criteria which were used in making up the list of 507 annoyances on the basis of the original data. These criteria of selection were:

(1) Frequency of the annoyance in every-day life, (2) Age distribution of the people who were annoyed by the thing or activity, (3) Objectivity, (4) Universality, (5) Permanence, and (6) Psychological and social significance. An attempt was made to select annoyances in such a way that there would be as little overlapping in meaning as possible. The original statement of each annoyance has been retained. The annoyances are arranged alphabetically, according to the various classes, such as Affectation, Anger, Arguing, Automobiles, Boisterousness, etc.; but the names of the classes are not included in the test. The Annoyance Test includes practically all of the most important and significant annoyances; and each of the things or situations is definitely annoying to a large number of people. The test can be used for illustrative purposes, and in a further study of the subject of annoyances.

We have calculated the averages of the mean scores of the 217 annoyances in the test for the two sexes and for the four age groups; and these norms are as follows:

	Ages				
	10–25	25–40	40–60	60–90	Average
Males	17.9	18.4	19.7	19.6	18.9
Females	21.2	21.2	21.9	20.7	21.3
Both Sexes	19.5	19.8	20.8	20.2	20.1

The figures in the last row represent the average scores of the two sexes combined, for each of the four age groups. The last column on the right shows the average scores of the four age groups combined, for males, for females, and for both sexes. If the Annoyance Test is given to a group of males between the ages of 25 and 40, for example, the results may be compared with the average figure of 18.4 which we obtained for this sex and age.

These average annoyance scores were first computed on the basis of the individual grades of *3*, *2*, *1*, and *0*, and they were later multiplied by 10. The grades of "X", which, according to the scale used in grading the annoyances, means "Have not been in the situation", were not included in the calculation of these scores. The average score of an individual subject is found by adding all of the grades of *3*, *2*, *1*, and *0* which he gives for the various annoyances, then dividing by the total number of numerical grades, and finally multiplying by 10. The average score for an individual annoyance is found by adding all of the grades of *3*, *2*, *1*, and *0* which the various subjects give for this annoyance, then dividing by the total number of numerical grades, and finally multiplying by 10. The number of numerical grades is equal to the total

number of grades of all kinds minus the total number of "*X*" grades.

The mean and average scores which may be obtained for individual annoyances can be compared with the mean and average scores which we obtained, and which were calculated on the basis of grades given by various groups of people of both sexes and varying in age from 10 to 90 years.[2] All of the mean and average scores for individual subjects, for groups of subjects, for individual annoyances, and for groups of annoyances, will vary from a minimum score of *0* to a maximum score of *30*.

Several blank spaces have been left on the first page of the Annoyance Test, and in these places the subject may be required to give his Name, Sex, Age, Class, Occupation, etc., or whatever data is desired by the experimenter for purposes of comparison and correlation.

Suggestions for Further Research on Common Annoyances

Several further problems have been suggested in the course of the long study that we have made on this subject. Most of these proposed studies are quite straightforward as far as the procedure is concerned; and the results that might be obtained would be interesting and of considerable value whatever their nature might be. We do not have the facilities or the time that would be required to carry out all of the investigations that are briefly outlined in the following paragraphs. These suggestions for research are being made in the hope that several others will become interested in these proposed studies and will pursue this subject further.

1. The reliability of the Annoyance Test has not yet been determined. Its internal consistency could be easily found after two givings separated, for example, by one day, one week, one month, one year, etc.

Studies of Individual Subjects and Groups of Subjects. 2. The Annoyance Test could be given to a large number of subjects, and their annoyance scores could be correlated with certain physiological and reflex functions which are susceptible to quantitative measurement, such as heart beat, breathing, blood pressure, psychogalvanic reflex, the activity of certain glands, etc. Correlations could be obtained between the annoyance scores and physiological measurements of different subjects at a given time, or between the annoyance scores and physiological measurements of the same subject at different times.

[2] See Table 4, in Common Annoyances: a Psychological Study of Every-day Aversions and Irritations, *Psychological Monographs*, 1930, **40**, No. 182. Pp. 218.

3. The annoyance scores could be correlated with various anthropometric measures and anatomical characteristics, such as height, weight, health, race, etc.

4. A comparison could be made between the annoyance scores of people who are living in different climates or countries, between the scores of people living in the country and in the large cities, between the scores of the rich and poor, and the scores of people engaged in different occupations.

5. Correlations could be found between scores on the Annoyance Test and scores made on other tests of personality traits, such as intelligence, the Pressey *X-O* test, a number of special ability tests, extraversion-introversion, ascendance-submission, social intelligence, etc. It would be interesting to know whether subjects who are most annoyed and subjects who are least annoyed are more popular or less popular with other people, and whether they have attractive or unattractive personalities in general.

6. After giving the Annoyance Test to a variety of subjects, the subjects could be required to judge or estimate the average strength of various individual annoyances in the population at large. These judgments could be compared with the average results or norms which we obtained for these annoyances.[3] A correlation could be found between the average annoyance scores of the subjects and their ability to judge the average strength of individual annoyances in the population at large. Average annoyance scores could also be obtained for a number of individuals who are all well acquainted with each other. Each person could then be required to judge or estimate the average annoyance score of each of the other individuals in the group; and a correlation could be obtained between the average annoyance scores of individual subjects and their ability to judge the average annoyance scores of other people. It would be very worth while to find out how accurately men can judge the annoyance scores of men, how accurately men can judge the annoyance scores of women, women those of women, and women those of men.

7. A selection could be made of all annoyances which are concerned with human behavior or with human characteristics.[4] The subjects could be required to indicate their own degree of annoyance for each of these items, and then they could state which of these annoyances refer to things that they themselves do or to characteristics that they themselves have. In this way it would

[3] See Table 4, in Common Annoyances, *Psychological Monographs*, 1930, No. 182.

[4] The complete list of 507 annoyances is given in Table 4, in Common Annoyances, *Psychological Monographs*, 1930, No. 182.

be possible to determine to what extent people are annoyad by things they themselves do and by characteristics they themselves have. An analytical study could be made of these results.

Studies of Individual Annoyances and Groups of Annoyances. The average score of a group of subjects for a single annoyance is less variable and more reliable than the average score of a single subject for a group of annoyances. The average scores which we obtained for each of the 507 annoyances are probably more reliable than the average annoyance scores which may be obtained for individual subjects on the Annoyance Test. The changes in the attitudes of large groups of people, which affect the average scores of the population at large for individual annoyances, are not as great as the alterations which may occur in the mood of an individual subject, and which influence his average annoyance score. Many of the annoyances that we studied are referred to in the oldest literature that is available; and a number of them seem to have changed relatively little after a lapse of several centuries.

8. The changes in the condition and strength of a large number of annoyances could be investigated and measured in the case of a single subject over a considerable period of time. A detailed study could be made of the time that some of the annoyances first make their appearance in the subject; why some of them decrease in strength, disappear, and then perhaps appear again; and the way these changes in annoyances are related to the personality organization of the subject.

9. We have elsewhere described several methods of avoiding and removing many of the most troublesome annoyances,[5] but this matter has not been experimentally investigated. Several concrete annoyances could be selected in an individual subject, and an experimental study could be made of the technical methods of removing them under controlled conditions. Such concrete material as is afforded by the annoyances could in this way be used in a study of the mechanism of learning and association.

10. In our investigation, subjects below ten years of age were not used because they did not seem capable of understanding the directions and some of the other material in the Annoyance Rating Blanks. Most of the annoyances are already present in people by the age of ten, however, and in spite of the introspective difficulty in dealing with very young subjects, it would be possible to determine at what approximate ages the various annoyances that we have studied first make their appearance in children. Many of the annoyances of adults were learned at a very early age; and it would

[5] H. Cason, Methods of Preventing and Eliminating Annoyances, JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY, 1930, **25**, 40–48.

be of considerable value to discover the conditions under which the various annoyances are generally learned, and, in a few cases perhaps, the extent to which they are influenced by native factors. It would be very important to find out which annoyances are peculiar to infancy and childhood, and which annoyances disappear before the age of ten. If subjects of a greater range of ages were available, a study could be made of the frequency and strength of the annoyances that are present at six months, one year, two years, three years, four years, six years, eight years, 11 years, 14 years, 18 years, 21 years, and 25 years. A careful study of the detailed changes in annoyances during the first 25 years of life would be of unusual importance.

11. It might be worth while to attempt to study the origin of certain annoyances in adult subjects by some variations of the methods of psychoanalysis and hypnotism.

12. Irritability is a prominent symptom in several mental disorders, and the annoyances could be used in a study of this question, especially in those cases where the patient is reasonably intelligent. A group of subjects could be secured for each one of several mental disorders, and an average score for each annoyance could be obtained for each disorder. An average annoyance score could also be calculated for each disorder. It would probably be desirable to make a special study of the nature and strength of annoyances which are present in the various forms or phases of manic-depressive psychosis. It would also be valuable to obtain a quantitative measure of the extent to which neurotic people are more irascible or annoyed than the average of the whole population.

13. A detailed investigation could be made of the most prominent annoyances that are present in several occupational activities in industry. What is the influence of these annoyances on the efficiency of the worker, and what practical steps could be taken to eliminate them? To what extent is industrial fatigue due to the presence of these annoyances, and how are the two subjects related to each other?

Sociological Research. 14. Many of the annoyances are closely related to customs, conventions, and taboos; and a better understanding of the annoyances could be obtained by a descriptive study of their historical and sociological relationships. It would be interesting to inquire when these customs came into existence, why some conventions appear and then disappear, and why we have our present set of habits in regard to morals, table manners, interior decoration, clothes, etc.

15. In several instances the behavior or condition described in the statement of the annoyance was at some earlier time strongly

forbidden or condemned by a civil, ecclesiastical, or military authority. There may or may not have been a good reason for the prohibition or interdiction at that earlier time; but although the circumstances may now be forgotten, the custom or taboo may continue to be taught as a matter of social heredity. Our knowledge of these matters is quite scattered and incomplete, and sociological research of this kind would have a definite aim and organization, and would have the advantage of a systematic psychological background. Such investigations as these would require the expert knowledge of an anthropologist or historical sociologist.

16. A detailed study could be made of the common annoyances of some very primitive people who are living to-day, and these results could be compared with those obtained in our investigation. With some modifications, perhaps, the same Annoyance Test could be given to several groups of people who could be selected in such a way as to represent different degrees or levels of civilization. A comparison could be made, for each annoyance, between the average scores of these different groups of people; and a general annoyance score could also be calculated for each group.

17. Our study of annoyances was concerned with what is actually annoying to people in every-day life; and it would be interesting to compare these results with the various modes of behavior which are said to be improper and incorrect according to the books on etiquette and deportment. An analytical study could be made of the several points of agreement and disagreement.

18. *A Study of Common Pleasures.* The pleasant feelings and the unpleasant feelings do not seem to be in just the same class or on exactly the same psychological plane. It seems to the writer that the unpleasant activities and experiences generally have a more positive character, that they are more fundamental in the organization of personality, and that they play a more important rôle in motivating conduct.[6] In order partly to test this theory of pleasant and unpleasant feelings, a study could be made of the "Common Pleasures" in every-day life by a procedure similar to that used in our study of "Common Annoyances". It would be interesting and important to make a comparison between the number and strength of the common annoyances and the number and strength of the common pleasures. An analytical study of the causal factors involved in the two cases would be of practical as well as theoretical value.

[6] *Cf.* H. Cason, Pleasant and Unpleasant Feelings, *Psychol. Rev.*, 1930, **37**, 228–240.

NEW BOOKS RECEIVED

(This notice does not preclude the book from further notice or review.)

The Psychology of Childhood. By Edgar James Swift. D. Appleton and Company, New York, 1930. Pp. x+431. Price $3.00.

The Prestige Value of Public Employment in Chicago. By Leonard D. White. The University of Chicago Press, 1929. Pp. xix+183. Price $2.50.

Individuality and Social Restraint. By George Ross Wells. D. Appleton and Company, New York, 1929. Pp. xii+248. Price $2.50.

Introduction to Social Psychology. By Radhakamal Mukerjee and Narendra Nath Sen-Gupta. D. C. Heath and Company, 1928. Pp. xv+304. Price $3.00.

The Education of Mentally Defective Children. By Alice Descoeudres. D. C. Heath and Company. Pp. 312. Price $2.00.

The Mighty Medicine. By Franklin Henry Giddings. The Macmillan Company, New York, 1929. Pp. 147. Price $2.00.

Psychology, Normal and Abnormal. By J. W. Bridges. D. Appleton and Company, New York, 1930. Pp. xxii+552. Price $3.50.

Because I Stutter. By Wendell Johnson. D. Appleton and Company, New York, 1930. Pp. xv+127. Price $1.50.

Pleasure and Instinct. By A. H. Burlton Allen. Harcourt, Brace and Company, New York, 1930. Pp. ix+336. Price $4.00.

A Study in Undergraduate Adjustment. By Robert Cooley Angell. The University of Chicago Press, 1930. Pp. ix+164. Price $2.00.

The Psychological Register. Edited by Carl Murchison. Clark University Press, Worcester, Massachusetts, 1929. Pp. ix+580. Price $6.00.

Foundations of Mental Health. By Leonardo Bianchi. D. Appleton and Company, New York, 1930. Pp. ix+277. Price $2.50.

Insomnia, How to Combat It. By Joseph Collins, M.D. D. Appleton and Company, New York, 1930. Pp. vi+131. Price $1.50.

Some Southern Cotton Mill Workers and Their Villages. By Jennings J. Rhyne. The University of North Carolina Press, 1930. Pp. x+214. Price $2.50.

The Human Mind. By Karl A. Menninger. Alfred A. Knopf, New York, 1930. Pp. xiv+447+xi.

Life Symbols. By Elizabeth E. Goldsmith. G. P. Putnam's Sons, New York, 1928. Pp. xxxii+411.

Readings in Sociology. By Wilson D. Wallis and Malcolm M. Willey. Alfred A. Knopf, New York, 1930. Pp. xxiv+639+xxvi. Price $3.50.

Psychologies of 1930. Edited by Carl Murchison. Clark University Press, Worcester, Massachusetts, 1930. Pp. xix+497. Price $6.00.

The Psychology of Religious Awakening. By Elmer T. Clark. The Macmillan Company, New York, 1929. Pp. 170. Price $2.50.

An Historical Introduction to Modern Psychology. By Gardner Murphy. Harcourt, Brace and Company, New York, 1929. Pp. xvii+470. Price $6.00.

Social Control of the Mentally Deficient. By Stanley P. Davies. Thomas Y. Crowell Company, New York, 1930. Pp. xix+389. Price $3.00.

Principles of Experimental Psychology. By Henri Pieron. Harcourt, Brace and Company, New York, 1929. Pp. viii+190. Price $3.75.

King Mob. By Frank K. Notch. Harcourt, Brace and Company, New York, 1930. Pp. 226. Price $2.00.

Delinquency Areas. By Clifford R. Shaw. The University of Chicago Press, 1929. Pp. xxi+214. Price $4.00.

Heredity in Man. By R. Ruggles Gates. The Macmillan Company, New York, 1929. Pp. xiii+385.

The Growing Boy. By Paul Hanly Furfey. The Macmillan Company, New York, 1930. Pp. viii+192. Price $2.00.

The Meaning of Sacrifice. By R. Money-Kyrle. The Hogarth Press, London, 1930. Pp. 273. Price 18s.

Psychology for Students of Education. By Arthur I. Gates. The Macmillan Company, New York, 1930. Pp. xi+612. Price $2.25.

The Essentials of Psychology. By W. B. Pillsbury. The Macmillan Company, New York, 1930. Pp. viii+466. Price $2.10.

Twins, Heredity and Environment. By Nathaniel D. Mattron Hirsch. Harvard University Press, 1930. Pp. 159. Price $2.00.

Elements of Human Psychology. By Howard C. Warren and Leonard Carmichael. Houghton Mifflin Company, 1930. Pp. viii+462. Price $2.50.

The Jack-Roller. By Clifford R. Shaw. The University of Chicago Press, 1930. Pp. xv+205. Price $2.50.

A Point Scale of Performance Tests. Vol. I. By Grace Arthur. The Commonwealth Fund, New York, 1930. Pp. ix+82.

The Language Development of the Preschool Child. By Dorothea A. McCarthy. The University of Minnesota Press, 1930. Pp. xiii+174. Price $2.50.

Great Experiments in Psychology. By Henry E. Garrett. The Century Company, New York, 1930. Pp. xvii+337.

Reflex Action. By Franklin Fearing. The Williams and Wilkins Company, Baltimore, 1930. Pp. xiii+350. Price $6.50.

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